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DEPARTMENT OF DEFENSE
COST REDUCTION JOURNAL

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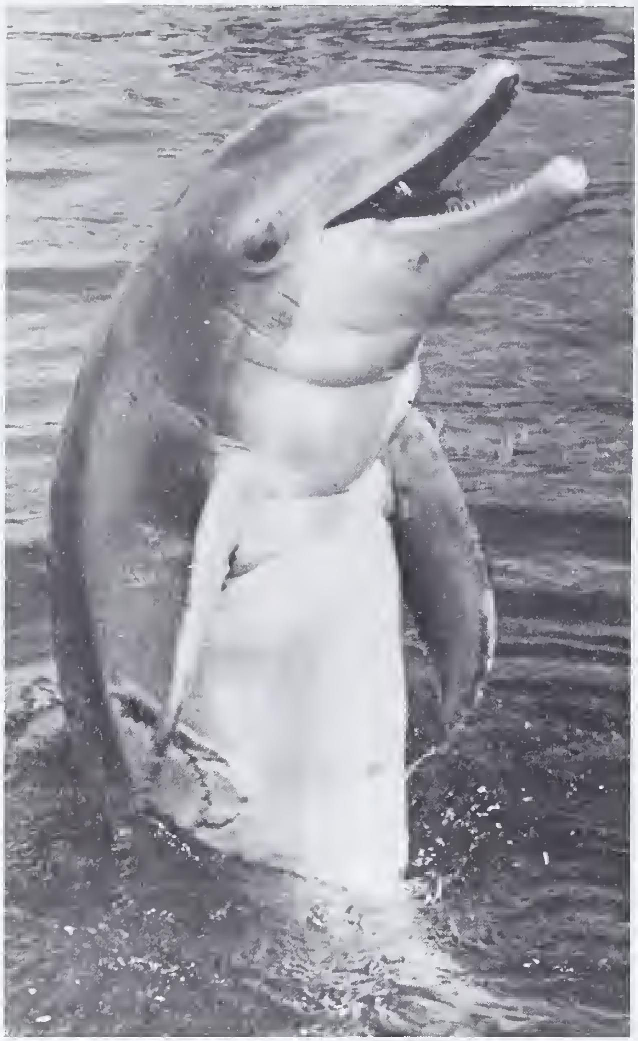
ERROR — P. 21
Subhead should read:
A Study in Consolidation

SPRING ◦ 1966
Volume II, Issue No. 1

SAVING WITH A PORPOISE



Naval sources swear there is nothing fishy about Tuffy's tale. Tuffy is the Point Mugu (Calif.) Naval Missile Center's trained porpoise. His (her?) recovery of a cradle used to launch the Regulus II missile target is claimed to have saved Navy $4,700 recently.

The $4,700 cradle is used to attach the booster motor to the Regulus II during launch. Target booster and cradle are launched together. The cradle and booster fall into the ocean seconds after the firing while the target continues on its mission. Previous salvage attempts had failed because the cradles could not be located in the murky water and shifting mud on the ocean botton.

Recovery attempts were abandoned.

Then came Tuffy!

Technicians attached a $2.95 buzzer to the cradle to summon Tuffy. On the next launch, the cradle and booster landed in the water, the buzzer buzzed and Tuffy streaked to the bottom where he nuzzled against the buzzer with his educated nose, 50 feet below the surface. By following Tuffy, divers were able to locate the cradle with the booster case still attached. Lines were fastened to the cradle and crewmen hauled it aboard their boat. Just a fresh-water rinse with a hose, and the cradle was ready for use again.

The OSD cost reduction directorate shares some flippancy with Tuffy in admitting to indecision in classifying the $4,700 as hard savings or cost avoidance. However, this slippery problem is miniscule compared to that which could be faced by officials who might have to weigh Tuffy's claim for an incentive award.

PURPOSEFUL SAVINGS

Savings bonds now pay 4.15 percent interest, mature in 7 years, offer tax advantages, are a safe, sound investment, and an easy way to save. These are strong incentives to join the savings program.

There are, however, even stronger incentives.

"Not all of us are called upon to fight for freedom in Vietnam," the President has noted. "But we can help in that cause by strengthening our country and its economy here at home."

In launching an intensive 90-day campaign throughout the Department of Defense, Secretary McNamara stated on March 10th, "There are many compelling reasons for all Americans to support their Government in meeting the urgent needs of the times. Particularly, we must back up our men both on the fighting fronts of Vietnam and in their defense of freedom in many other parts of the world."

Cost Reduction Journal

Published by the Directorate for Cost Reduction, Office of the Assistant Secretary of Defense (Installations and Logistics).

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(Installations & Logistics)

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The Cost Reduction Journal is published quarterly by the Directorate for Cost Reduction Policy, Office of the Assistant Secretary of Defense (Installations and Logistics), for distribution within the Department of Defense.

The Cost Reduction Journal seeks to stimulate cost reduction ideas, promote cost consciousness, and enhance understanding of efficiency programs. The Journal's content includes: (1) cost reduction goals and accomplishments; (2) policies and procedures of the cost reduction system; (3) cost reduction techniques and processes in all functional areas from which savings are derived; (4) new developments in concepts and philosophy that affect cost reduction objectives; and (5) specific cost reduction examples, with attribution where appropriate.

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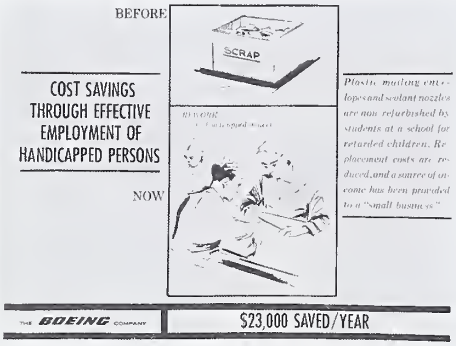


BEFORE

COST SAVINGS THROUGH EFFECTIVE EMPLOYMENT OF HANDICAPPED PERSONS

NOW

Plastic mailing envelopes and sealant nozzles are now refurbished by students at a school for retarded children. Replacement costs are reduced, and a source of income has been provided to a "small business."

THE BOEING COMPANY

$23,000 SAVED/YEAR

One poster in particular caught our eye at the Contractor Cost Reduction Exhibit in Boston. It is reproduced above.

We are reminded that both the Department of Defense and the General Services Administration have endorsed to all businesses and industries holding Government contracts the use of sheltered workshops for the handicapped as subcontractors. The joint statement points out that sheltered workshops "can supply a wide variety of goods and services at competitive prices, and Government prime contractors are encouraged to give these workshops every opportunity to compete for subcontracts."

An article in the March-April 1964 "Journal of Rehabilitation," official publication of the National Rehabilitation Association, reports the results of a survey of contractor opinions on "the ability of sheltered workshops to do work on a regular businesslike production and quality basis." Of the 132 contractors surveyed, 82 percent said the performance of these workshops was better than or equal to performance in most industrial organization, 6 percent gave no opinion, and 14 percent (included in the 82 percent) said workshops performed "far better" than most industrial organizations.

Anyone who needs more convincing, says a representative of the President's Committee for Employment of the Handicapped, might take a look at the workshops in his area.

A list of sheltered workshops for the mentally retarded can be obtained from the National Association of Retarded Children, 386 Park Avenue S., New York, N.Y., 10016. A list of workshops for persons with other handicaps is available from the National Association of Sheltered Workshops and Homebound Programs, 1029 Vermont Avenue NW., Washington, D.C., 20005.

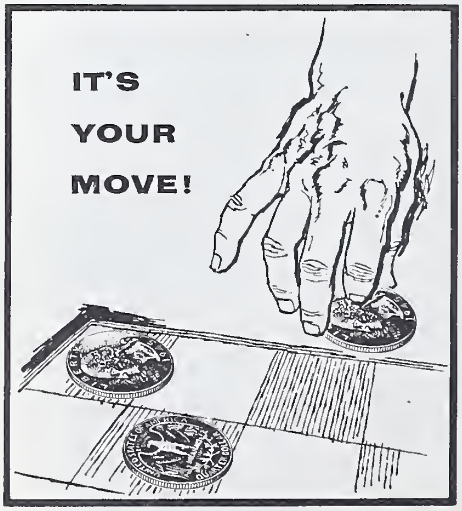
INTERCHANGE AND INERTIA

Effective cost reducers are professional borrowers. They have no compunctions about picking up money-saving ideas already in use elsewhere. Why not? Someone gains and no one loses.

The trouble is that not all good ideas are served on a silver platter. Frequently the borrower has to do some scrounging to obtain the details. There's the rub! A recent Air Force survey disclosed some managers who felt that news items on cost reduction were too sketchy for an idea transplant. In many cases, this is true. However, in all cases, there is nothing except inertia between the manager and the additional detail he wants. All he has to do is ask for it. Almost invariably, the organization or person that has already put the idea into practice is cited in the news item—and, almost invariably, these sources are happy to fill the information gap.

We admire the inquisitive, action-minded attitude of the Commander of the Air Force's 328th Combat Support Group (ADC) at Richards-Gebour Air Force Base. He had no compunctions about asking the Navy for its complete promotional package on cost reduction campaigns after reading a brief article about Navy's Project "WOW."

News items were never intended to be precise specifications or texts on management improvement. However, items can whet the managerial appetite and stimulate inquiries. Hopefully, the manager really interested in cutting costs will ask for the details he needs. After all, how much can it hurt?



The INCENTIVE AWARDS PROGRAM *as a* MANAGEMENT TOOL

By **THOMAS D. MORRIS**
Assistant Secretary of Defense for Manpower

Value Received

The basic truism that nobody knows a job quite as well as the man or woman who performs it has important implications for the cost reduction program. The individual employee, properly motivated toward making improvements in his job, represents one of the most valuable assets in any organization's cost reduction effort.

Tapping the great reservoir of talent represented in the over 1 million civilian employees in the DoD has long been the primary objective of the Department of Defense incentive awards program. That this program has had a significant payoff is readily evident from the over $590 million in benefits recorded over the past 5 fiscal years from both employee suggestions and superior accomplishments for which employees received awards.

Greater Achievement Foreseen

Last year was a particularly notable one in the history of the DoD incentive awards program. The nearly $82 million in first-year benefits from employee suggestions in the Department of Defense represented 85.4 percent of the Government's total suggestion program benefits; the over $128 million from outstanding acts or performance (superior accomplishment awards) represented 86.9 percent of the Government's total—a record in which employees and managers in the Department of Defense can take pride.

We are looking forward to achieving new heights in the current fiscal year now that Public Law 89–198, enacted September 22, 1965, has made it possible to include the nearly 3 million active duty members of the Armed Forces in that portion of the DoD incentive awards program which provides cash awards for suggestions and inventions. Following essentially the same standards and evaluation procedures and using the same suggestion committees as those considering ideas submitted by civilian employees, we anticipate a large volume of constructive improvements will be advanced by members of the Armed Forces, with equally large benefits.

Not all the suggestions and accomplishments which

FIRST-YEAR BENEFITS

DEPARTMENT OF DEFENSE INCENTIVE AWARDS PROGRAM

Fiscal year:	*Suggestions*	*Superior accomplishments*	*Total*
1961	$54, 096, 925	$29, 923, 498	$84, 020, 423
1962	58, 538, 064	63, 286, 091	121, 824, 155
1963	61, 377, 426	24, 130, 159	85, 507, 585
1964	66, 171, 148	22, 188, 836	88, 359, 984
1965	81, 921, 024	128, 367, 197	210, 288, 221
Total	322, 104, 587	267, 895, 781	690, 000, 368

produced the millions of dollars of benefits listed above represented genius-level ideas. The benefits achieved are the sum of many ideas, large and small, and most important, they represent the extra effort of a lot of people who found their jobs challenging—people who were not indifferent to waste or inefficiency.

Savings Not Only Benefit

The dollar benefits, of course, are only part of the incentive award story. Many ideas and accomplishments cannot be measured in monetary terms—the benefits are intangible or the dollar benefits are difficult to fix with sufficient accuracy to use as the basis for the award. A safety suggestion which corrects a dangerous situation has an intangible value and is recognized without regard to dollar benefits. Yet, aside from the human and intangible values, there is a potential that a substantial sum will be saved if just one serious on-the-job injury or death is avoided.

Another reason dollar benefits alone cannot be used as a measure of the success of an incentive awards program is that the system, properly used, has a value of its own as a management tool. Constructive use of incentives can establish a climate which encourages and rewards outstanding performance and which encourages employee ingenuity and effort.

Skilled Administration Essential

The words "constructive use of incentives"—whether they be cash or honorary—are the key to whether the desired climate is established. Incentive awards are a two-edged sword, and the program requires skillful management. When ideas which should be adopted are not accepted, there is discouragement; when the wrong employees are recognized, there is disgruntlement; and when employees worthy of recognition are overlooked, there is disillusionment. Even in the most successful suggestion programs, at least two out of three suggestions are turned down. If this is not done fairly, and diplomatically, with adequate explanation to the suggestor, more employees are discouraged than encouraged. Inevitably some suggestions are delayed in processing and, inevitably, there are some employees who will remain unconvinced of the validity of the reasons given for not accepting their ideas. Skillful management of the program requires that ideas be processed carefully, promptly and courteously so that such problems can be kept to the minimum. Good management also requires that supervisors keep their standards high but at the same time remain alert to opportunities to initiate timely award recognition for truly outstanding achievements.

Requires Closer Ties to Cost Reduction

We need closer, continuing coordination between the cost reduction program and the incentive awards program in order to achieve the full potential offered by each of these programs. There are many cost reduction achievements for which individuals and groups warrant recognition and encouragement, and the incentive awards program is a flexible instrument through which the most appropriate type of recognition in any particular case can be extended. There undoubtedly are persons responsible for major cost reduction achievements who are eligible for awards who are not now being recognized; supervisors should be alert to take advantage of the wide range of awards which are available.

Honorary awards, depending on the nature of the achievement, can be granted to civilian employees at the major command or Secretary or Director level within a department or agency, and in unusual cases by the Secretary of Defense for meritorious or exceptional accomplishments that are either part of or outside of regular job responsibilities. Awards and decorations exist, of course, within each of the services by means of which military personnel also can be given honorary recognition for outstanding accomplishments.

Cash awards ranging up to $25,000 can be granted to civilian employees and members of the Armed Forces, or groups of such individuals, for suggestions, inventions, and special acts or achievements beyond their normal job responsibilities. One of the obstacles to group cash awards of this type that existed in the past has been removed now that members of the Armed Forces have eligibility for these awards along with their civilian coworkers.

Cash awards or within-grade salary increases can be granted to employees whose high-quality performance of their assigned responsibilities meets the standards for this type of recognition. (Recognition of this type for military personnel was not made a part of the DoD incentive awards program because Congress did not want to introduce overlap with the large number of special pays authorized in military compensation.)

Command Responsibility

In summary, the incentive award program is a flexible management instrument which, when skillfully used, can dramatize to employees the high value DoD management sets on achievements that produce savings, extra productivity, and efficiency. It is a major responsibility of commanders, program administrators, and supervisors to use it wisely and productively.

DESTROYS AMMO, RECEIVES MEDAL

An Army demolition expert, charged up for economy, blasted his way to the Army Commendation Medal by priming an explosive idea into a $96,000 hit.

Spec6c. Don C. Searles of the 36th Ordnance Detachment, U.S. Army Forces Southern Command (USARSO), felt that 2,500 demolition kits, scheduled for destruction as excess, were too many to simply go up in smoke. (A demolition kit is a heavy charge of explosive in a metal container about 4 feet long and 6 inches in diameter. With its various attachments, the kit is designed to clear mine fields by detonating the mines.)

Searles began considering ways to salvage something of value from this project. First he checked his detachment's work schedule and found another project listed: the destruction of unserviceable ammunition. Practically any type of chemical explosive will deteriorate in time and must be destroyed before it becomes either unstable or completely inactive—dangerous in the first case, ineffective in the second.

Searles saw that more than 58,000 pieces of ammunition of various types were scheduled for destruction during fiscal year 1965. At this point his idea took shape. He calculated the quantity of explosives which would be needed for both projects—the destruction of the demolition kits and the ammunition. More than 100,000 pounds would have been required. At an average cost of 93 cents per pound, this totaled some $96,000. Searles learned that plans had been made to requisition the explosives for the two projects.

Armed with this information Searles took his idea to his detachment commander, Capt. Charles H. Perry, Jr. Why not use the excess demolition kits to destroy the unserviceable ammunition? Both projects could be done at the same time and the funds program for explosives would be saved.

Captain Perry and Specialist Searles explored the matter further and found that a considerable saving in labor was possible also. Both projects separately would have required the work of six demolitions men for about 75 days, or a total of 3,600 man-hours. The U.S. Army Audit Agency field office at Corozal verified the dollar savings that would accrue from the suggestion.

Searles' suggestion has since been forwarded to Headquarters, Department of the Army, for consideration of its future potential.

In addition to the Army Commendation Medal presented him by Maj. Gen. J. D. Alger, USARSO Commander, Searles received a cash award under the incentive awards program.

So everyone concerned is happy. Specialist Searles is happy, his superiors are happy and so is Uncle Sam—not to mention the U.S. taxpayers.

TALOS MISSILE

Price Reacts to Two-Step Advertising Shift to Competition, and Multiyear Purchase

Navy's TALOS missile is one of the oldest, largest, and most costly in the Navy's arsenal. None of this is news. What is news is that it costs 42 percent less today than it did a year ago. Therein rests a tale.

The TALOS missile was developed between 1945 and 1952 under the technical direction of the Johns Hopkins University Applied Physics Laboratory. Subsequently, the Bureau of Naval Weapons negotiated a series of sole source production contracts with a major defense contractor. The most recent sole source contract was dated April 28, 1965.

In December 1964, initial actions were taken to prepare a technical data package and logistical program that would support a competitive procurement. Step one (technical proposals) of the two-step formal advertising process was consummated between April and June 1965. Step two (definitive bids) was completed August 30, 1965, against an invitation for bids that asked for prices on both a 3-year and 5-year basis.

Award was made on a 3-year basis on November 9, 1965, to the low bidder at a price 42 percent lower than the year-earlier noncompetitive contract. Savings from shifting to competition total $3.7 million. Savings from incorporating multiyear requirements total 1.8 million. Total savings: $5.5 million.

The prior sole source was also the low bidder.

COST REDUCTION ADMINISTRATOR CITED

The Secretary of Defense Meritorious Civilian Service Medal has been presented to Harrell B. Altizer, Deputy Director for Cost Reduction Policy in the Office of the Assistant Secretary of Defense (Installations and Logistics), for his "outstanding contributions" to the Defense Cost Reduction Program.

The award, signed by Secretary of Defense Robert S. McNamara, was presented to Mr. Altizer by Assistant Secretary of Defense Paul R. Ignatius February 11 at a ceremony in the Pentagon attended by high Defense officials.

Secretary Ignatius described Mr. Altizer as the career executive "most conversant with the program's philosophy and every detail, whose managerial ability proved a major moving force for the successful implementation of the program."

Mr. Altizer, 39, is a veteran of World War II. He entered the civil service in 1950 as a requirements specialist for the Army and, in 1956, was promoted to a staff requirements position in the Office of the Secretary of Defense. In 1961 he was appointed Executive Assistant to the Assistant Secretary of Defense for Installations and Logistics and from that position was assigned to head the task group that performed the spadework for the Defense Cost Reduction Program. He served subsequently as the principal civilian staff coordinator for the program and was appointed its Deputy Director in October 1965.

Mr. Altizer holds BCS and MCS degrees from Benjamin Franklin University. A former resident of Richlands, Va., he and his wife and two children now reside at 11806 Charen Lane, Potomac, Md.

"To Harrell B. Altizer for outstanding contributions to the development and implementation of the Department of Defense Cost Reduction Program. Mr. Altizer's sound judgment, objectivity and foresight have contributed to a major degree in the success of this organized and systematic endeavor to initiate and record new, improved, or intensified management actions by all echelons of the Department of Defense personnel to procure and operate the Department of Defense force structure at the lowest possible cost. His broad knowledge of logistics, specific comprehension in each resource area, constructive and cooperative negotiating techniques, and his diligence and dedication were decisive in producing the Department of Defense Instruction which serves as the foundation of the program. Mr. Altizer has consistently achieved positive results in the Department of Defense Cost Reduction Program, and I am pleased to award to him the Secretary of Defense Meritorious Civilian Service Medal."

ROBERT S. MCNAMARA,
Secretary of Defense.

FEBRUARY 3, 1966.

LIFE CYCLE COSTS: An LMI Study

By **BARRY J. SHILLITO,**
President Logistics Management Institute

Price Historically the Determinant

Historically, in equipment procurements, practically all competitive source selection decisions made by the Department of Defense have been based on price. Very little consideration at the time of source selection has been given to the logistic costs that result from the source selection decision. These logistic costs include corrective and preventive maintenance; inventory management; training; inspection, installation, and checkout; transportation; and documention. [The study also considered limited operating costs, e.g., manpower and fuel or power consumption, along with these logistic costs.] The Department of Defense and industry have been concerned about this problem for many years. This concern led to many studies and some actions, including a study recently completed by the Logistics Management Institute. Extensive help was obtained from both the Department of Defense and industry in the conduct of this study.

Total-Cost Approach Recommended

Our study recommends an approach for giving weight to life cycle costs in making competitive source selection decisions in equipment procurements. In general, the types of items studied were subsystems and components. All three military departments have done work in the area. The Air Force had done early work on this subject in connection with the joint AFSC/AFLC Real/Ultimate Cost Regulation. More recently, the Electronics Command of the Army has provided a good basis for the approach in its Life Cycle Management System, as has the Navy through its Advance Procurement Planning efforts.

Concept Being Tested

Working together on a steering committee chaired by a representative of OASD (I&L), the individual military departments and DSA have set up teams of experts to test the concept of life cycle costing by using it to plan and execute actual procurements. Reports of these experiences with life-cost procurements are being fed back to the steering committee, which coordinates the tests and disseminates highlights. We were convinced that a considerable amount of testing should be done before the Defense Department could determine how practicable it would be to use the concept in *all* hardware procurement.

Impacts on Readiness and Costs

It is my personal belief that as experience is accumulated, the buying of many types of subsystems and components on a life-cycle cost basis will gradually become an accepted feature of defense procurement, with a significant, positive impact on both readines and cost reduction in the following ways:

1. *Improved equipment readiness* will result from higher performance reliability of hardware procured, together with improved maintainability. There will thus be less downtime for repair, and improved availability of component parts.
2. *Cost reduction* will result from better procurement planning, improved criteria for standardization decisions, a more comprehensive basis for competition. and reduce expenses from operation and support.

Legal Criteria

To summarize briefly how we reached these conclusions, first, we should appreciate that although Title 10 of the U.S. Code, section 2305(c) states:

* * * "Awards shall be made to the responsible bidder whose bid will be most advantageous to the United States, price and other factors considered * * *" very few competitive procurements of subsystems or components—advertised or negotiated—have taken explicit account of economic criteria other than the bidders' prices. Over the years, because of a number of understandable reasons, lowest bidder's price has served as the sole economic criterion for awarding contracts. Reliance on the phrase "other factors" in the Code, in awarding to other than the low (price) bidder, has been rare. The Code is silent

regarding competitively negotiated contracts, but it has been the custom to award such contracts to companies submitting the lowest price quotations.

In addition to the belief of the Department of Defense and industry that these traditional practices sometimes lead to excessive costs to the DoD, a number of statements by the General Accounting Office have also indicated a concern that this practice may not always be in the best interest of the Government.

Annual Logistics Support Costly

The purpose of the LMI study was to look at the total cost of equipment, including not only its acquisition price, but also the follow-on costs of support during its service life. We found that the dollar magnitude of *annual* logistic support cost of hardware ranged from 2 percent to as high as 29 times the acquisition price. Differences in these support costs among bidders' equipments often exceeded differences in the bid or proposed purchase price.

Scope of Study

Let me be more specific about the types of hardware we covered in the LMI study. We excluded major weapon systems, ammunition, services, and miscellaneous procurements (including buys under $10,000) focusing on parts, subassemblies, assemblies and minor subsystems. I would not want to suggest that life cycle costing considerations should not be a part of contract award decisions for major weapon systems. To the contrary, we believe that the efforts of the Department of Defense to give visibility to system life cycle costs in selecting sources for the development of major programs are eminently sound and enormously significant. The benefits of these efforts can be eroded, however, if the life cycle cost approach is not carried into procurement of subsystems, equipment, and spares.

Parts, subassemblies, assemblies, and minor subsystems accounted for more than $6 billion of the total defense hardware procurement dollars in fiscal year 1965, so the opportunities for savings by applying the concept of life costs are significant. The study considered only purchases in which competition is technically feasible. It excluded R. & D.-type items, and restricted its concern to equipments that were in production or going into production. We were concerned, in essence, with the feasibility of changing an environment in which purchase price determines the selection of suppliers and in which the consequent logistic support costs are not an award factor, to one in which purchase price *plus* the follow-on costs determine the choice of supplier.

This type of competitive environment offers advantages from contractors' points of view. They can still be competitive with higher priced equipments if the associated support costs are low enough to offset the price differentials from lower priced, higher support cost items meeting minimum specifications. In addition, contractors have the satisfaction of knowing that contract award decisions reached are also in the best interest of the taxpayers.

Problem Areas

The need for life cycle costing in equipment procurement arises because differing degrees of latitude in procurement specifications lead to different ranges of follow-on support cost among competitors' equipments. If the expected range is large enough, the procurement should be planned so that the contract is awarded to the bidder quoting the lowest expected life cost. There are impediments, however, to implementation of this approach. The primary ones are organizational separation of functional responsibilities (engineering, maintenance, supply, procurement, etc.); the difficulties in defending decisions on a life-cost basis; and the problems of uncertainty in predicting and measuring those operating and support costs which are expected to vary significantly among competitors' hardware during service life.

Optimum Solutions

With regard to predictions, I should like to emphasize that there is a science to being "almost right." We acknowledge that life cost estimates are never going to be 100 percent right (and neither Government nor industry should expect such accuracy), but we do believe that precise, well-defined logic, when applied systematically to life cost considerations in the source selection process, could and should be significantly superior to the alternative of making no attempt to predict life costs, and assuming that the lowest-price item is always the ultimate "best buy."

Elements of the Decision

Four conditions must be satisfied for employment of life cycle costing: (1) there must be an ability to predict logistic support costs with reasonable (statistical) confidence; (2) bidders' claims must be capable of audit or demonstration; (3) life cost criteria must be stated in the IFB or RFP with sufficient clarity and definiteness to enable bidders to know how the bids will be evaluated; and (4) there must be reason to presume that efforts (time and manpower) to make an explicit analysis of life costs will be justified by net savings or improved readiness.

(LIFE CYCLE, *continued on page 40.*)

MOVING EXPERIENCE

Storage of household goods in Government quarters prior to arrival of the family, instead of in commercial warehouses, saved Sheppard Air Force Base (Tex.) $1,000 in 3 months' time.

Normally, when an Air Force family moves to a new base, household goods are taken to a commercial warehouse for storage to await the arrival of the family. In an effort to reduce this cost of storage in transit, household goods are now placed in Government quarters, if possible, prior to arrival of the family.

This procedure was first used by the Air Force Academy.

BETTER TEST EQUIPMENT, FEWER TESTS

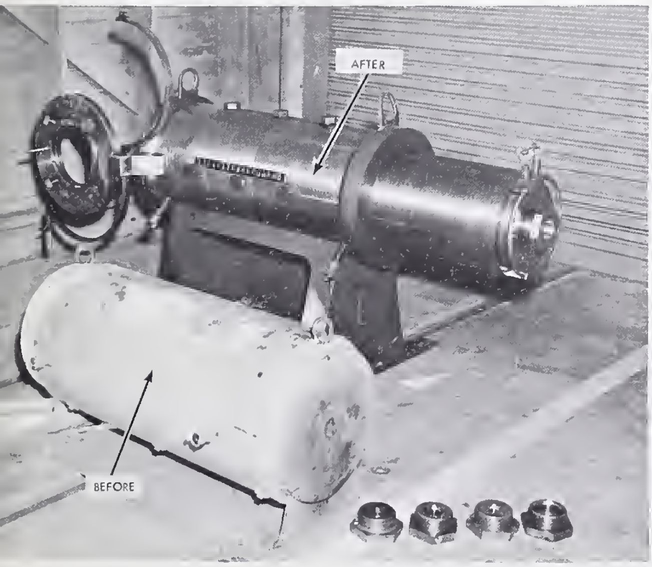
At Radford Army Ammo Plant (Va.), better test equipment brought a 73-percent cut in items tested for lot acceptance, netting savings of $13,010 annually.

The big items in the photo are "before" and "after" versions of the test equipment used to assure that igniters meet rigid performance requirements.

The objects in the lower right corner of the photo may look like cookie cutters but each is actually a component of the Honest John rocket. They are called igniters. Each is about 12 inches in diameter and contains a maze of electrical devices and explosive pellets which start the burning of the propellant in the rocket motors.

Using the "before" tester, 14 igniters were fired in each acceptance test. Usually, 1 out of every 7 lots had to be retested by firing an additional 14 igniters.

Using the "after" test vehicle, the number of igniters fired for lot acceptance testing was reduced to six and retesting almost eliminated. Present annual test costs are $12,290 while the old method cost $34,000—a gross annual savings of $21,710. The new tester cost $8,700 leaving a net savings of $13,010.



SAVINGS "A-GO-GO" AT NEW CUMBERLAND

Colonel Cary with "Go-Go Girls" Darcy Pfoutz, Diane Salinger, Kathy Devine, and Sharon Witters.

Col. Victor Cary, Commanding Officer of the New Cumberland Army Depot (Pa.), preps "Go-Go" girls on promotional goals for the Depot's Cost Reduction Week. Bowl on table holds foil-covered chocolate "dollars" to be distributed by the young ladies as reminders of monetary rewards obtainable for accepted ideas.

The Week's drive called for:

- One economy idea from each employee addressed personally to the Commanding Officer;
- Special posters, signs and daily bulletins;
- Local radio, TV, and news coverage.

During the week 525 beneficial suggestions were received. Congressman N. Neiman Craley complimented the Depot on its "dynamic programs of Zero Defects and Cost Reduction" and Maj. Gen. George J. Richards (Ret.), formerly an aide to General Eisenhower, told the participants: "You are saving taxpayers' money, and everyone here is a taxpayer."

LEFT ON BASE

Bringing instructors to the students instead of sending students to the instructors eliminated $34,000 in training costs for the Air Force.

On-base training in management techniques is being received by 56 supervisors at Robins AFB, (Ga.) under a $17,300 contract with the University of Georgia. Training at off-base universities, as originally programed, would have cost $37,600. Savings totaled $20,300.

In a second case, Robins AFB made arrangements with Air Training Command for a traveling team of instructors to come to WRAMA to provide parachute-packing training for 57 personnel. The programed alternative had been to send the WRAMA personnel to Chanute AFB, Ill., for the training. Elimination of travel and per diem costs for the WRAMA employees (offset by travel and per diem for the instructors) netted savings of $13,700.

MOVES JOB, AVOIDS PURCHASE

When you can't bring the equipment to the job, move the job to the equipment. This bit of logic netted Air Force approximately $65,000—the cost of a test stand needed to repair an F–4C air compressor.

Prime mover was Mrs. Billie J. Stanton, inventory management analyst in the Materiel Management Directorate of Air Force Logistics Command's San Antonio Air Materiel Area at Kelly AFB, Tex.

The test stand was urgently needed at Ogden Air Materiel Area, Hill AFB, Utah. Mrs. Stanton found that the only test stand of its type was located at Oklahoma City AMA where it was being used to accomplish workloads already scheduled there.

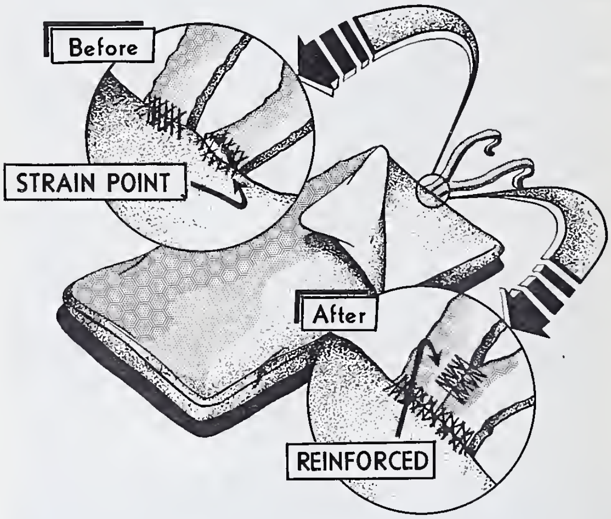
Procurement lead time for a new test stand was 12 months. Because of the importance of the F–4C aircraft as a first-line fighter, the Ogden workload would not wait.

Mrs. Stanton then suggested moving the mountain to Mohammed by shifting the Ogden workload to Oklahoma City. The two Air Materiel areas got together and did exactly as Mrs. Stanton suggested.

SEW-SEW IDEA

A septuagenarian with youthful ideas about conservation recently received $750 for a suggestion worth $20,000 to the Army. Mrs. Martha J. Ellis, who repaired army clothing and textiles at Fort Lewis (Wash.) prior to her recent retirement recommended an easy way to strengthen the straps used to tie a rolled-up sleeping bag.

Each bag has two straps. One end of each strap is sewn to the bag, the other end remaining free for tying to the companion strap. Strains develop where the straps join the bag. Mrs. Ellis suggested sewing the straps together about one-half inch from the bag. This simple but effective improvement placed the strain on the straps rather than at the points where the straps were sewn to the bag. This alteration significantly reduced the number of sleeping bags requiring repairs.



For this idea and others previously submitted by her and accepted by the Army and in recognition of her dedication to duty, Mrs. Ellis was awarded a Certificate of Achievement by Maj. Gen. A. S. Collins, Jr., Fort Lewis Commander.

HOSE CUT CUTS COSTS

The price of 77,000 feet of hose for transmitting petroleum products dropped 44 percent when DSA's Defense Construction Supply Center switched from 250-foot lengths to 50-foot lengths.

A value engineering analysis showed that five 50-foot assemblies costing $1,556 would do the job as well as a single 250-foot assembly costing $2,781. Result: Hard savings of $377,208 on the total buy.

EQUIPMENT MAINTENANCE AND COST REDUCTION

By **GEORGE E. FOUCH**
Deputy Assistant Secretary of Defense (Equipment Maintenance and Readiness)
Office of the Assistant Secretary of Defense (Installations & Logistics)

Scope and Substance

Equipment maintenance and readiness policies and objectives of the Department of Defense are concerned with the effective and efficient use of required resources to provide the necessary maintenance support.

Equipment maintenance is concerned with servicing, repairing, overhauling and modification of more than $105 billion worth of weapons and equipment. This job consumes the effort of about 1 million people (military, civil service, and contractor) and an estimated $12 billion annually in direct costs for labor and materials. It represents more than 200 million square feet of facilities at some 2,000 locations, representing an investment in facilities of about $3.5 billion.

OSD Guidance and Management Control

The role of the Office of the Secretary of Defense in the maintenance area is to *cause effective management.* Maintenance responsibility at the OSD level is carried out by the Directorate of Maintenance Policy and through the Department of Defense Equipment Maintenance and Readiness Council. Effective management requires factual and timely information about the business. The main effort for the past 2 years has been to assure that the management tools and systems were being developed and effectively implemented.

Those who have been in maintenance can recall, no doubt, that as you went from one assignment to another, you were faced with a new way of doing business. This was true whether the change was from command to command, base to base, and in some instances, equipment to equipment. This has been the grassroot problem to be resolved. It is being solved as single management and information systems emerge in each department.

Realizing that it took many years to develop the old habits, the rate of progress over the past few years has been good. Each of the management systems of the individual departments is geared first to providing data for use at subsequent levels of management in the fields of maintenance supply and procurement, as well as feedback to the design source.

For the depot or overhaul levels of maintenance, the effort of the Office of the Secretary of Defense has been to devise uniform systems for cost accounting and production reporting. Here efforts have resulted in Department of Defense Instructions 7720.14, "Uniform Cost Accounting for Depot Maintenance," and 7720.9, "Depot Maintenance Production Report." The Uniform Cost Accounting System is designed to accumulate cost on an accrued basis and to distribute cost against program elements (weapon systems) or Federal stock classes. Its primary objective is to provide:

1. A framework for assembling and reporting comparable data on depot maintenance and accomplishments needed by management to plan and measure productivity;
2. To develop performance and cost standards; and
3. To determine where the greatest emphasis for management improvement should be directed.

The Depot Maintenance Production Reporting System is designed to provide comparable data that will permit a periodic review of:

1. Work accomplished in relation to planned programs.
2. Use made of facilities provided for support of weapon systems.
3. Depot maintenance costs in comparison with procurement or replacement costs.
4. Alternate locations where equipment may be maintained if the primary source is destroyed.
5. Current or potential maintenance capability as relates to future requirements.

The system is also designed to provide a ready bank of data on military equipment to permit special studies on dispersion of facilities, effectiveness of program planning, and efficient use of resources.

Both the cost and the production reporting systems cover in-house as well as contractual sources.

Progress is also being made on two new policy and procedural documents. One will provide a uniform method of programing maintenance workloads. The other will prescribe a uniform equipment maintenance management information system.

The need in the programing area is for standard factors, uniform methods of computing and standard formats for portrayal. The objective here is to improve our process of planning, scheduling, and budgeting, also to provide for machine processing.

A DoD-wide Aeronautical Depot Maintenance Study has been completed. Its purpose was to determine workload requirements over the next 5 years, and the hard core need for facilities. As a result of the study, we are much closer now in producing a comprehensive system of programing for equipment maintenance.

The management information system for equipment maintenance will provide standard definition and coding of certain elements of maintenance data to permit Defensewide analysis of the maintenance operations and the equipment being maintained. This is not for the purpose of standardizing the maintenance information systems of all military departments, but rather to acquire selected common data required for the decision-making process within the Department of Defense. When completed, these data are designed to permit:

1. Validation of maintenance manpower requirements and skill mix.
2. Validation of prescribed maintenance requirements for equipment at each level.
3. Measurement of scheduled and unscheduled maintenance requirements by type, model, or class of equipment.
4. Measurement of equipment reliability and maintainability.

Optimizing Maintenance Cost

In essence, maintenance experience must be captured and portrayed for use by all levels of management. From this we know maintenance demand rate by type or class of equipment. We are also able to evaluate the characteristics of equipment which influence the demand rate and equipment readiness. We are now approaching the time when we can put this information to use and optimize maintenance support cost in the acquisition phase of new weapon systems.

The DoD Equipment Maintenance and Readiness Council tackled this matter to provide top-down direction that would (1) cause maintenance and support to be a part of the weapon system design considerations beginning with the conceptual stage, and (2) cause the continuous development of integrated support plans during the acquisition process. This result is detailed in Department of Defense Directive 4100.35, entitled "Development of Integrated Logistic Support for Systems and Equipment," which is directed at closing the support management loop. It requires that we translate our experience and knowledge gained through the use and management of similar inventory equipment into constraints upon the design and development of new equipments and the integrated support planning therefor. Integrated support planning is a composite of the elements necessary to assure the effective and economical support of a system or equipment for its programed life cycle. It includes:

1. A plan for maintenance support.
2. Logistic support personnel.
3. Technical logistic data and information.
4. Support equipment.
5. Spares and repair parts.
6. Contractual support needs.

Joint Management Training

The Department of Defense also recognizes the need for maintenance managers to be informed and knowledgeable of good management techniques. We initiated three Joint Service Management Courses at the Air Force School of Systems and Logistics, Wright-Patterson Air Force Base, Ohio. Here we seek to identify techniques for use and application of the data products of the systems to achieve the most out of them. The courses which range from 1 to 4 weeks in length are designed to cover the principles of industrial management, particularly as they pertain to the maintenance business. This includes:

1. Maintenance Management Information Course (210), 3 weeks.
2. Industrial Maintenance Management (222), 4 weeks.
3. Maintenance Management Orientation (242), 1 week.

OSD Control

Maintenance Management Control in the Office of the Secretary of Defense begins with the review of documents implementing our directives and instructions. We receive and review reports from the departmental systems. We participate in the review of reports from the departmental systems. We participate in the review and approval of budgetary requirements and program change proposals. There is an understand-

(MAINTENANCE, *continued on page 33.*)

RECOGNITION BEST STIMULANT, SAYS ESO COMMANDER

Over 600 cost-cutting ideas were received in a 5-week period from the 1,000 employees at Navy's Electronics Supply Office, Great Lakes, Ill. When asked the reason for this volume input, Capt. Frederic W. Corle, SC, USN, Commanding Officer at ESO, stated:

"Today, more than ever before, we need ideas for improvement and the constructive criticism of our people to aid in the conduct of our mission. These ideas and criticisms serve as effective weapons against spiraling costs. However, if we are to expect our people to interest themselves in our operating problems and to adopt an attitude of working with as well as for management, we must assure them that their suggestions are vitally needed and sincerely appreciated. I can think of no better way to establish and maintain a work climate which will engender innovation and constructive thinking than prompt and appropriate recognition for a job well done. I have found it gratifying to see the way that people will respond when their efforts are truly appreciated. Unfortunately, the value in recognition as an effective management tool is too often preached and seldom practiced." (See story at right.)

LADIES' DAY AT ESO

Miss Dorothy H. Ries of Waukegan, Ill., was presented the highest beneficial suggestion award paid to a woman employee of the U.S. Navy Electronics Supply Office, Great Lakes, during the recent "War on Waste" campaign.

Miss Ries suggested a faster procedure for assigning stock numbers to items of supply which had been identified previously by part numbers. Her idea saved the Navy over $3,600 and expedited the supply of material to the fleet. In appreciation of her services, Capt. Frederic W. Corle, Supply Corps, USN, Commanding Officer, of ESO, presented Miss Ries a certificate of commendation and a $235 award.

Captain Corle also presented awards to Mrs. Worral C. Isgar and Mrs. Wilma L. Parker.

Captain Corle praised the Waukegan trio for their initiative and resourcefulness and inducted the three ladies into the ESO $1,000 Savers Club.

At Right, Captain Corle stands with trio from Waukegan. The awardees (from left in photo to right) are Mrs. Wilma L. Parker, Mrs. Worral C. Isgar, and Miss Dorothy Ries.

MARKED IMPROVEMENT

Reusable metal stencils have replaced throwaway paper stencils in marking aircraft at the Overhaul and Repair Department of the Naval Air Station at North Island (Calif.).

Stencils and paint spray guns are used in marking nomenclature, instructions, warnings, etc., on portions of the aircraft fuselage after the aircraft has been painted. The F–4 aircraft requires 371 separate stencils and the F–8 aircraft requires 152 stencils for such marking.

Historically, stencils have been fabricated from "stencil board," a chemically treated cardboard. This type of stencil, which disintegrates from impregnation with paint or solvents used to remove paint, can be used, on average, only 3 times. The useful life of metal stencils is unlimited.

In photo at left, Lester Jarman, aircraft painter at NSC North Island, demonstrates the new stencil.

CLOSE MANAGEMENT MOST IMPORTANT NOW, SAYS DCNO

The concepts and objectives of the Defense Cost Reduction program are more important than ever in this period of increased operations and support expenditures in Vietnam. This point was made forcibly by Vice Adm. Lot Ensey, USN, Deputy Chief of Naval Operations at a top-level Navy Department Executive Review held on January 18, at the Departmental Auditorium in Washington, D.C.

Vice Admiral Ensey pointed out: "Under this program—note that we *do* buy what we need to achieve *balanced* readiness. This doesn't mean we shouldn't buy *enough* but rather that we don't want to buy *more* than we need. We must invest our available funds where they are needed most. No good logistician will argue with that idea.

"Next—we are to buy at the lowest *sound* price. That doesn't necessarily mean we must buy at the lowest price *bid;* we will buy the product that will best do the job, from a firm that will be able to produce what we need when we need it. We do want to get maximum use out of the more competitive procurement methods, but we will not do this at the expense of the quality we need in what we buy.

"Finally—no good operator or sailorman will quarrel at all with reducing operating costs by terminating *unnecessary operations!* Nor against reduction, where practicable, through standardization and consolidations.

"By doing these things, we can *increase* readiness, reduce our total fund requirements from what they would otherwise be, and finally make funds available for other previously unfunded needs.

"So—the DoD cost reduction program is based on good principles, which will enhance our readiness, and which warrant even more emphasis in view of our southeast Asia operations and the consequent possibility of heavy and uncontrolled drain on the U.S. economy."

COLONEL CITED FOR PROMOTING COST REDUCTION

Pictured above is Lt. Gen. L. J. Lincoln, DCSLOG, Army cost reduction program manager as he presented an Army Commendation Certificate to Lt. Col. Harry D. Calenberg of the Army cost reduction group for "outstanding and dedicated performance of duties in the administration and management of the Army cost reduction program."

The citation signed by Dr. Robert A. Brooks, Assistant Secretary of the Army (I. & L.) states, "By virtue of his extraordinary managerial ability and exceptional leadership, Lieutenant Colonel Calenberg contributed immeasurably to the impressive success of the Army's cost reduction effort which produced savings of over 1 billion 173 million dollars in fiscal year 1965."

Colonel Calenberg, as the senior military member of the Army cost reduction group, organized, developed, and executed a comprehensive orientation and publicity program which promoted and sustained Armywide interest in cost reduction.

His activities included: The presentation of briefings at worldwide cost reduction seminars; the preparation of the initial script of the film "Reduce Costs—Suggest" (MF 20–528) and service as technical advisor and actor in the film; the design of numerous display charts selected for use by the Secretary of Defense in his annual report to the President.

(Colonel Calenberg recently retired from active military service to accept a managerial position with industry.)

MANPOWER MANAGEMENT and the AIR FORCE MANAGEMENT ENGINEERING PROGRAM

By **MAJ. GEN. BERTRAM G. HARRISON, USAF**
Director of Manpower and Organization, Deputy Chief of Staff—Programs and Resources

Accents Manpower Conservation

The term "Management" is often thought of as bringing together the elements of three other "M's"—Men, Money, and Materials. Management is not an end in itself, but rather it is a continuing and demanding requirement on the administrator to make the best use of available resources in performing his mission. The objective is to accomplish the maximum mission with the least use of the *M* resources.

Getting this job done is a challenge to all levels of management requiring the relentless pursuit of efficiency and intelligent economy. Air Force's management engineering program is concerned with management of all resource elements, but particularly with manpower. The objectives of the program are to develop and maintain accurate manning standards, using recognized industrial engineering techniques, and to conduct detailed studies to improve management effectiveness.

Although much remains to be accomplished before the management engineering program can claim full effectiveness, the capability to accomplish these objectives is being built today in the Air Force through a growing corps of professional personnel thoroughly familiar with scientific management techniques.

Flexibility Required

The Air Force is composed of approximately 1,100,000 personnel—both military and civilians. Essentially, it is a functional organization, decentralized into 20 major commands. SAC is one of the largest—about 230,000 personnel. There are smaller ones such as the Accounting and Finance Center at Denver, Colo., with about 1,800 people. Air University has the function of education for Air Force personnel. The Military Airlift Command operates all over the world as a carrier of personnel and supplies. Activities range from the operation of radar early warning stations at remote sites to operations such as aircraft maintenance, base hospitals, Minuteman missile sites, and so on. The wide range and complexity of Air Force functions are important points, because they reveal the flexibility required of a management engineering program to have applicability Air Force-wide.

Preceded by Manpower Validation Program

The management engineering program as it is known today is an outgrowth and amplification of the manpower validation program. With the primary objective of developing a better method of determining manpower requirements, a specially trained small cadre of officers and airmen in 1959–60 successfully initiated and tested the manpower validation program in five major commands. The decision to implement the program Air Force-wide meant in effect creation of a whole new function where none had existed previously. Problems of procurement, training, and retention of qualified personnel were significant and resulted in a rather gradual expansion of the program during the 1960–64 time period. As the manpower validation program expanded it became evident that the relative value of methods and procedures analysis, a complementing side of management engineering, had grown. Therefore, the program was redefined and retitled as the management engineering program in August 1964.

Organization and Staffing

The principal effort of the approximately 1,500 people now working in the program is being provided through some 143 management engineering teams assigned directly to the major command headquarters, but physically located at Air Force bases within the commands. This organizational concept provides control and nearly complete objectivity in meeting program goals and has proven to be very effective during the past 4 years.

When the program is fully implemented there will be about 1,900 personnel assigned, and correspondingly some additional teams established. This number will represent less than 0.2 of 1 percent of the total Air Force manpower resource as contrasted with expenditures of up to 1 percent for comparable programs in other governmental and industrial organizations. Teams range in size from 4 to as many as 21 members depending upon the command and complexities of the base where located. The mix of officers, airmen, and civilians on teams also varies by command.

Career Opportunities

Management Engineering offers exciting career opportunities because of its objectivity and challenging assignments. Consequently, the program is attracting some of the most capable personnel both in and outside the Air Force. For the most part, officers have degrees in industrial engineering or related fields. Airmen selected for the program are primarily noncommissioned officers with considerable experience. The airmen are chosen from a variety of career fields and are given training in the use of industrial engineering techniques. In choosing civilian personnel the classification standards series for both industrial engineers and management analysts are used.

In short, there is being developed a highly motivated, well-trained management capability, schooled in Air Force organization and operations, employing the latest management techniques to increase mission capacity.

Measurement Techniques

Management Engineering studies begin at the grassroots, building from the bottom up at work center level. A work center is a relatively small but homogeneous grouping of jobs—people usually working under one supervisor and in close geographical proximity. For example, a dining hall is one of several work centers in the food service function.

Team technicians employ systematic and proven methods to develop and maintain accurate work center manpower standards. In other words, they determine how many people are required to do a job by using one or a combination of the following methods:

1. Work sampling;
2. Time study;
3. Predetermined time standards;
4. Operational audit.

These four choices allow flexibility in applying a study method to the wide range of Air Force functions. Work sampling is a method operating under the laws of probability based on making a number of observations at randomly selected times. The data collected provides a very accurate estimate of the actual productivity of a worker and group of workers. This method is very accurate, economical, and indicates exactly where work center manhours are being expended. Work sampling has proven to be the best method in studying most Air Force functions. It is used in about 85 percent of Management Engineering studies.

The time study method is based on determining the actual elapsed time for performing elements of a work operation—the stopwatch technique. This method is used primarily in industrial complexes of the Air Force. Predetermined time standards are based on standard data gathered from the times for basic motions making up the work operations. Finally, there is operational audit which is a coined term covering a number of techniques. One is best judgment which is used for activities which are required but not being performed at the time of the study. Another technique, historical data, develops standards from past performance data.

Additionally, there are the good operator techniques and directed requirements. The latter refers to a number of Air Force positions which are mandatory by law or regulation.

Manpower Standards

Development of work center manpower standards involves the following sequence of actions.

The major command directs teams at several representative locations into selected functions. The teams develop work center descriptions—written statements which define the work being performed in terms of tasks, recognizing only that work which is authorized. The teams select workload factors which are units of measure which can be translated into manning requirements, such as rations served for a dining hall. The standards development method to be used is also determined at this time. During this process, the teams observe the work methods being used, and if these methods can be improved, recommend changes to the supervisors.

The teams forward the work center descriptions to the major command where they are standardized for the entire command. Then they are coordinated with the functional staff to insure that work being performed is required, conforms with current policy and procedures, and adequately forms a basis for measurement.

The major command sends the approved work center descriptions to several teams with instructions to measure work performance using the manpower measurement techniques discussed earlier. These

(MANAGEMENT, *continued on page 23.*)

NAVY APPLIES PRESSURE FOR BETTER GAGE

Manufacturers today are supplying higher quality pressure gages at approximately the same prices previously paid for short-lived gages. Credit value engineering for the economy.

Pressure gages are a necessary item on numerous pieces of machinery, piping systems, galley equipment, medical equipment and other components found aboard every vessel in the U.S. Navy. Thousands of 2½-inch dial-size pressure gages underwent shipboard replacement each year. Numerous complaints of early failure prompted a critical look by value engineers at the Ships Parts Control Center (SPCC) in Philadelphia.

Samples of failed gages were obtained from operating ships of the fleet. Some had failed within 5 minutes after installation because of severe pressure pulsation and vibration. Others had failed after several hours of usage. Examination of the failed gages revealed badly worn gears and loose pivot pins.

Mr. William Fetrow, an equipment specialist in the Technical Division of SPCC, suggested that the Value Engineers contact the Naval Boiler and Turbine Laboratory (NBTL) at Philadelphia to run an evaluation testing project on these gages.

With the approval of Mr. J. W. Murdock, head of the Applied Physics Division of the Laboratory, and Mr. C. J. Foltz, head of the Scientific Branch, a joint evaluation project was established. The project was conducted from April 26, 1963, to August 7, 1964, at the laboratory in Philadelphia.

Samples of failed gages were examined to determine what parts were failing. New gages were obtained from the Navy supply system and subjected to various pressure and vibration tests to simulate shipboard conditions. Similar tests were conducted on various types of commercially available gages supplied through the cooperation of several gage manufacturers contacted by Mr. Fetrow. Additional information was obtained from gage samples installed on shipboard machinery.

Laboratory testing included a variable frequency vibration test, a pressure cycle test, and a physical shock test.

A total of 78 gages of various types were evaluated, including gearless, magetic coupling, direct drive, plunger link, and gear type.

Laboratory and fleet evaluations showed that gages with brass-geared movements have an average wear-out time of 17.2 hours under laboratory conditions and 20 hours under actual shipboard operating conditions.

After extensive testing in the laboratory and aboard ship, the best gage was found to be one having a lubricated stainless steel geared movement. The stainless steel mechanism operated 300 times longer than the brass mechanism, or 6,000 operating hours compared to 20 operating hours.

SPCC's revised procurement specifications called for the 2½-inch gages to be furnished with lubricated stainless steel geared movements that would meet severe testing requirements. The Bureau of Ships approved these changes.

Over a 5-year period an estimated 82,000 brass gages would have had to be used compared to 40,000 of the new stainless steel gages. This savings of 42,000 gages amounts to $191,000. Savings will be even greater in later years. These figures are based on a present estimated installed population of 92,000 gages in the active vessels of the fleet and the present rate of replacement of the brass gages.

JULY WEEK 1966

DSA's cost reduction program team gets down to cases for 1966's upcoming Defense cost reduction week. Keith Adams, Subgroup member, is flanked by Kenneth English, program coordinator (at left) and Edward Wolfe, assistant coordinator.

SUPPLY DATA-KEEPING STREAMLINED

Mechanization of provisioning documentation by the comptroller at the Pacific Missile Range, Point Mugu, Calif., is saving Navy $30,450 a year.

Provisioning documents provide hardware-ordering data to customers, information for vendors, and stock control information.

Previously, supply depot employees made item order lists, system stock lists, and allowance parts lists by hand. The process involved hand-posting and sorting, plus typing and offset printing of reproducible mats costing 65 cents per page.

Today, the information is keypunched directly from publications into primary data cards. The cards are then machine-sorted and sequenced into a consolidated deck which is computer-processed (on open computer time) and printed out on reproducible mats.

The old manual method cost $43,850 a year, the new method costs $13,400 a year.

Before
Supply Depot employee Marie Nowak types allowance parts lists, one of many manual steps in the documentation processes.

After
Programers Freda Vest and Darrell Strasser check allowance parts lists being printed on high-speed lineprinter.

PARTS ORGANIZED, POSITIONED AT WORK SITE

Maintenance labor costs on the B–52 dropped $44,400 a year at the Oklahoma City Air Material Area when repair parts were sequenced in mobile bins.

The new parts-to-plane system resulted from a study made by L. Bryce Hughes and H. C. Strain, engineering technicians.

It was found that material handlers were duplicating their work when incoming parts were delivered to a central kit pool. Here the incoming crates were unpacked and repackaged in accordance with the B–52 work requirement.

The repackaged items were then placed in boxes and transported to the appropriate aircraft. Here they were unloaded and placed in a stationary storage bin. These bins were not designed for proper storage to facilitate sequenced work requirements.

It was decided that one handling operation could be eliminated and that parts should be binned in sequential order so the appropriate parts would be available and easily located at the time needed.

As a result of the study, mobile storage bins were built. These are mounted on casters for ease in movement. The bins are placed at the parts center and are stocked with the parts as they are unpacked and then moved as near as possible to the appropriate part of the aircraft.

The new system eliminates the time necessary for a B–52 mechanic to find the designated bin from the parts logbook. The uniformity of the new bins permits this savings because all ECP (Engineering Change Proposal) kit parts categories can be assigned the same bin numbers for all scheduled work on the aircraft.

Another benefit is the convenience of the bins which are placed as near the aircraft as possible and saves the mechanic time in moving from his work station to obtain the parts and return.

A time study of the old method compared with the new disclosed that 195 man-hours were saved on each aircraft by the new one-loading system and that approximately 5 minutes of every hour for each mechanic was saved by positioning the bins close to work areas.

INVENTORY CONTROL POINTS:

A Study in ~~Consolation~~ Consolidation

By MAJOR GENERAL VICTOR J. MacLAUGHLIN, USA
Assistant Director, Plans, Programs and Systems
Defense Supply Agency

Six Million Dollar Result

The Defense Supply Agency's consolidation of three of its inventory control points into one and transfer of ICP functions from one supply center to another, has produced budgeted savings of over $4 million in fiscal year 1966 and recurring annual savings totaling $6.2 million are expected in fiscal year 1967. These actions, and the resulting savings, represent some of the most recent efforts of DSA to continue refinement and improvement of assigned management tasks.

Diverse Systems Inherited

When DSA was established in August 1961 to manage common supplies for all military services, it inherited a diversity of military supply systems, philosophies, and procedures existing in the old single-manager organizations. Quite naturally, the supply systems of the single-manager operating agencies reflected the supply systems of their parent military services. The subsistence and clothing and textile agencies were Army-oriented; medical and petroleum agencies displayed their Navy background; general and industrial were descendants of Army and Navy, respectively. The creation of single managers for construction and automotive supplies added two more systems and introduced the possibility of military service customers having to requisition supplies from as many as seven different supply systems.

Single Agency Advisable

In 1961 with the tentative decision to integrate management of electronics supplies under the Air Force it was deemed appropriate to consider the establishment of a single agency to coordinate and manage the activities of the several integrated supply organizations. Thus, the Defense Supply Agency was established absorbing the single-manager activities into a separate organization, outside the military departments, reporting to the Secretary of Defense. The Defense Supply Agency was assigned a dual mission. In order of priority, DSA was to (1) provide maximum support to the military services, and (2) to provide that support at the least possible cost.

Early Efforts

The first year of DSA's existence was largely devoted to identifying and developing ways in which to go about accomplishing these two missions. Military urgency underscored every management action in that customer supply support was to be maintained throughout the

(Continued on next page)

transition from single managers to DSA. Analysis of the management task sought answers to several questions. What are the customer's needs? How can the various systems of the single managers be standardized. What is the impact of joint staffing of DSA by military and civilian personnel from widely divergent backgrounds? What factors need to be weighed in devising a responsive distribution system?

Among the most difficult of these questions were those dealing with item management boundaries between DSA and the military services. Which items would be managed by DSA? Which items would be retained for military service management? What criteria would govern these decisions? Developing these criteria for item management cognizance and applying them to the Federal Supply Classes (FSC's) being considered for integrated management, were key phases of determining item assignments and, in turn, how many ICP's would be needed, and their size and structure.

FSC Grouping Problem

DSA assignments were made to Inventory Control Points (ICP's) on the basis of FSC, with justified exceptions. The problem was to group these classes to provide maximum homogeneity while attaining viable groupings of materiel for management purposes. It became obvious that with the substantial spread in the relative size of these ICP's, some effort was required to evaluate the relationship of direct to overhead costs and these relationships to the optimum size of an ICP. The best answer that developed was that the size of an ICP ought to be inversely related to the complexity of the items assigned; i.e., that a relatively large number of similar items which were simple to manage could be managed at one activity, but complex items which required more management attention tended to place a practical limit on the size of their managing activity. At the same time, DSA policy of decentralized operations to the field indicated span of control problems if the number of ICP's were to continue to grow.

Requirements Functions Analyzed

Since requirements planning is generally considered the key to ICP operations, the first analysis of DSA management groupings of material was based on the requirements functions at the ICP's. It became apparent that DSA's three personnel-related commodities (i.e., food, clothing, and medical supplies, sharing the same requirements base—troop strength by area) offered considerable potential for consolidation. Adding emphasis to this factor was the relatively small size of these three ICP's; and, of course, as small activities, they were characterized by high overhead costs which seemed to point out immediate potential for savings in overhead and the elimination of two major computer installations if all personnel support items could be combined into one ICP. Further analysis showed that such a consolidation would also result in an ICP comparable in size to the other major DSA ICP's.

Medical Subsistence and Clothing Assignments

There were no significant operational problems foreseen in accomplishing this consolidation which could not be overcome through proper time phasing and planning; however, before any actions could be initiated, the potential for major program changes in the future had to be evaluated. The Item Management Coding Criteria were under revision at that time, and there was the possibility of assigning DSA responsibility for civil agencies support in certain commodity areas. Fortunately, the medical, subsistence, and clothing assignments had been made without exceptions, and all items in these commodity areas had been placed under integrated management. Only the normal changes in item mix could be anticipated. The potential impact of assuming civil agencies support in these commodity areas was assessed as being well within the capability of a consolidated organization. Consequently, in November 1964, the medical, subsistence, and clothing centers were consolidated into the Defense Personnel Support Center, which became operational in July 1965.

Fuel and General Supplies

Meanwhile, there was one other ICP operation which appeared to require analysis in terms of its cost effectiveness. The Defense Fuel Supply Center which awards contracts for bulk fuels for all military services worldwide was also managing a very small ICP with centralized stock control for a few hundred items of packaged petroleum products and chemicals. Management of these items could be assumed by any around-the-clock major computer operation at DFSC. In November 1964, the ICP functions of the Defense Fuel Supply Center were ordered moved to the Defense General Supply Center, and the move was completed in February 1965.

More Effective Supply Support

These consolidations have resulted in savings of personnel, overhead costs including substantial reductions in data processing equipment rental, and operating costs. The improved management resulting from these changes has also provided more effective supply support, at lower cost, in fulfillment of the DSA missions.

(MANAGEMENT, *continued from page 18.*)

teams are located on bases most representative of the command's operation in the work centers of the function involved.

Upon completion of measurement, the teams document their findings in the form of comprehensive studies which are sent to the major command headquarters. There the data is analyzed, and command standards are developed by use of correlation and regression statistical analysis techniques. These manpower standards indicate the number of personnel by skills required in a work center to complete given volumes of the workload factor. Some of the standards developed may not be directly programable, since workload factors may not relate directly to available program information. To bridge the gap from the standard to the program in such cases, the major command develops program estimating factors. These factors are statistical expressions of manpower requirements in terms of variables, such as base population and flying hours, forecasted in Air Force programing documents. Following coordination of the standards with the functional staff, the command adjusts the existing manning for the work center.

Copies of standards with appropriate backup are then sent to Air Force headquarters where a review is again performed for procedural and mathematical accuracy. Work center descriptions are coordinated with functional managers—again to insure that the work measured covered only that which is required and approved as Air Force policy. Upon approval the major command is notified.

When comparison of command standards indicates that a function is sufficiently standardized in terms of organization, tasks and procedures, an Air Force common engineered standard is developed by correlation and regression analysis techniques applied to data in command studies. The standards then become Air Force-wide manpower planning and programing tools for such functions.

Accomplishments

The Air Force management engineering program provides a professional tool for producing engineered manpower standards which are truly credible and usable by all levels of management. To date the program has achieved the following:

- Development of more than 3,200 work center manpower standards.
- Redistribution of more than 14,000 manpower spaces, including both additions and reductions, through standards applications.
- Current annual savings of $40.6 million reportable under the Department of Defense cost reduction program—a financial return of about four to one.

Other benefits not capable of being quantified include increased awareness at all managerial levels of the need to improve use of available resources, better determination of skill requirements and more accurate identification of training needs.

A program of this type has very definite potential for a large number of other organizations. The Federal Aviation Agency and the Royal Canadian Air Force both basically adopted the Air Force Management Engineering program and have successfully implemented it. Such recognition manifests Air Force leadership, and it is anticipated that future progress will enhance the image.

Future Plans

Although a good deal has been accomplished, much more significant results will be realized in the future, such as increased emphasis on standardization of functions, where practicable, and on development of Air Force common standards.

The primary emphasis of the program at this time is on achieving standards coverage as rapidly as possible. Consequently only minimum effort has been devoted to management improvements. As major commands near completion of their standards coverage, program emphasis will shift to provide more comprehensive management engineering services—the full range of techniques from work simplification to the application of the more advanced mathematical concepts which serve to improve operating methods and systems. Far greater benefits will be realized as this shift in program emphasis occurs.

The instrument shop of the 62d Field Maintenance Squadron, McChord AFB (Wash.) now repairs 80 percent of the instruments on McChord-based C–214 Globemasters, resulting in a cut in cost of maintenance previously done under commercial contract.

Warehouse sweeping costs dropped $7,032 in fiscal year 1965 at San Diego's Naval Supply Center when motorized warehouse sweepers replaced handbrooms.

ZERO DEFECTS: A Personal Program

By **IRVING B. ALTMAN**
Staff Director, Plans & Policy Division, Directorate for Quality and Reliability Assurance, Office of the Assistant Secretary of Defense (Installations and Logistics)

Personal Controls Needed

In this age, defects can impose staggering penalties—in lives and dollars. While quality control, inspection, testing, and other defect-prevention programs are effective controls, they are not effective enough. Something more is needed. That something is the personal interest of everyone in defense work.

Two years ago the Office of the Secretary of Defense undertook to enlist the personal support of every man and woman in the DoD and in industry in improving quality and in cutting scrap and rework. This intensified effort was the beginning of the DoD Zero Defects program.

Definition

DoD Instruction 4155.12, "DoD Zero Defects Program," defines this program as follows:

> Zero Defects Program is a generic term referring to a program of planned motivation aimed at inspiring individuals to strive toward producing defect-free work the first time; it stresses the importance of good workmanship in which the individual can take pride and receive recognition. The program emphasizes the prevention of errors by detecting and removing the causes of their generation.

Growth

In the past 2 years the Departments of the Army, Navy, and Air Force, and the Defense Supply Agency have instituted in-house Zero Defects programs in various design, development, engineering, testing, procurement, production, maintenance, storage, and operational activities throughout the United States and at some oversea bases. Over 1,800,000 civilian employees and military personnel have now pledged their support to the Zero Defects program.

In the same period more than 1,200 defense contractors and their subcontractors (with approximately 2.5 million workers) have likewise instituted Zero Defects type programs under various titles (Zero Defects, PRIDE, VIP, Do Good Work, Project Sterling). The program has enjoyed strong grassroots support, including the backing of labor unions.

Identification of Cause is Major Feature

The success of a Zero Defects program depends to a major degree on its "Error Cause Identification and Removal" feature. This refers to a procedure by which employees are asked to probe for the causes of defect generation (e.g., poor lighting at machine, inaccurate measuring instruments, out-of-date drawings, inadequate work instructions) and report these causes of errors to their supervisors. Management initiates an investigation into the alleged error causes and then acts to eliminate them. The employee is advised of the results of the investigation. When an employee also recommends a procedure for eliminating a cause of error, he may be rewarded under the existing beneficial suggestion program.

Other Program Attributes

Other important features of a successful Zero Defects program are (1) the establishment of numerical goals (e.g., defect rates, scrap and rework costs) for the various elements (e.g., departments, shops, processes, products) of a plant or activity, and (2) the measurement of achievement against these established goals. Charts and graphs are publicly displayed to acquaint employees with the established goals and progress toward their attainment.

Formal Guidance

A DoD Handbook 4155.12–H, "A Guide to Zero Defects," has been developed and is in the process of publication. This handbook provides guidance for planning, implementing and sustaining a Zero Defects program. Among the subjects discussed in the handbook are (1) concepts and background, (2) planning and organizing a program, (3) establishing numerical goals and scorekeeping, (4) designing error cause identification and removal procedures, (5) prekickoff and kickoff activities, (6) sustaining activities, and (7) recognition and rewards.

Some Payoffs

What are some typical results achieved by contractors and DoD in-house activities attributable to Zero Defects programs?

One company reported a 35 percent reduction in scrap and rework during production. Another company reported a 50 percent reduction. A third company reported $1 million of savings in 11 months due to reduced costs of production and testing.

One military department has reported improvements resulting from in-house Zero Defects programs as follows: (1) travel pay error rate reduced from 5 percent to 0; (2) aircraft flight test defects dropped from an average of 106 to 22 per flight; (3) stock balance and consumption record error rate reduced from 4.6 percent to 0.3 percent. Another military department reported the following in-house impovements: (1) A 50-percent reduction in defects in the production of rockets, (2) brazing operations on a rocket warhead improved from 90 percent acceptance per month to 99 percent acceptance; (3) 1,200 Error Cause Removal suggestions turned in at a single depot with one suggestion alone resulting in savings of $4,200; (4) computer input errors reduced 90 percent at another installation.

Widespread Use

Numerous nondefense companies and civilian agencies of the Federal Government have adopted or are planning Zero Defects programs. For example, companies manufacturing pharmaceuticals, paints, automotive and electronic parts, and other products for the civilian economy have adopted Zero Defects programs. Federal agencies (e.g., BoB, NASA, AEC, GSA, HEW, Post Office) are studying the DoD Zero Defects techniques and experience. In addition, several companies in Great Britain, West Germany, Italy, and Japan have adopted or expressed interest in Zero Defects.

Savings

Cost reduction data attributable to the DoD Zero Defects program have not been collected separately. Wherever identifiable, savings attributable to in-house Zero Defects programs are reported under currently existing areas of "Reducing Operating Costs" of the DoD cost reduction program as provided in DoD Instruction 7720.6. However, the sizable cost reduction potential of the program can be estimated on the basis that it costs approximately $15 to identify and correct a typical defect in hardware production or maintenance overhaul. If we assume each of approximately 4 million persons in defense-related industries and activities prevent only two defects a year, this would represent an annual savings of $120 million. It costs about $1.50 per employee to institute and sustain a Zero Defects type program. Therefore the net savings would exceed $110 million per year.

Top-Level Support

The Secretaries of Army, Navy, and Air Force have video-taped strong supporting statement for Zero Defects programs. Paul Ignatius, Assistant Secretary of Defense for Installations & Logistics, has this to say about Zero Defects programs:

"During the past few years Zero Defects has emerged as a major grassroots movement among the American people. It is a movement aimed at preventing defects and failures that are potentially costly, not only in terms of dollars but, importantly, in terms of human lives. Zero Defects has evoked strong support from people in all walks of life—engineers, scientists, physicians, production workers, secretaries, maintenance workers, executives, and military personnel of all ranks.

"We might well ask WHY? WHY this strong popular support? Probably Zero Defects is our way of saying that we are against shoddiness. We are *against* shoddy quality whether on the defense front or on the home front. We are *for* excellence—the kind of excellence of which President Kennedy and President Johnson have so often spoken.

"*Second*, while the Department of Defense is obligated to equip our Armed Forces with what they need—it is also obligated to do this at the least cost to the American taxpayer. Inferior workmanship—at the drafting board—on the production line—in the maintenance shops—pyramids defense costs. We can not afford the luxury of repeating the same job a second or third time.

"In the final analysis, Zero Defects serves both the national interest and the personal self-interest of each of us—the national interest by helping to provide our Armed Forces with safe and reliable equipment—our own self-interest by reducing the cost of defense and thus lightening our burdens as taxpayers.

"Zero Defects is in the finest American tradition of striving for the best. The Department of Defense, therefore, encourages every one in industry, in the military departments and defense agencies to accept the Zero Defects challenge."

It's Academic!

THE SCHOLARLY INFLUENCE ON COST REDUCTION

By **CHARLES A. STONE, Colonel, USAF**
Dean, School of Systems and Logistics

Cost reduction is not necessarily the purpose of having each student in the graduate logistics program of the School of Systems and Logistics, Air Force Institute of Technology, present a thesis in partial fulfillment of the requirements for the degree of Master of Science in Logistics Management. However, several theses have involved research on concepts that appear to have future cost reduction possibilities. One such thesis is entitled, "A Methodology for Computing Maintenance Costs by Weapon/Support Systems." It was submitted by Lt. Col. John M. Torbet, USAF and Maj. Fred R. Schu, USAF.

In this thesis, the researchers designed a costing methodology and costed the maintenance of the C–135 transport aircraft system for each month of a designated 6-month period. The costed maintenance was then statistically related to such C–135 operating data as flying hours, landings, operational readiness time, passengers and cargo carried. The purpose was to find where the highest degree of correlation existed between one or more C–135 operational functions and the total aircraft maintenance costs. Conceptually, the maintenance cost estimating relationship reflecting the highest degree of correlation would then be used as a basis for predicting the impact on the maintenance function of programed changes in operational activity. Also, from a systems analysis viewpoint, the maintenance cost estimating relationship would be used as a basis for estimating the maintenance cost portion of the operating cost category.

Since the maintenance resources, i.e., manpower, equipment, material, and facilities, required to support programed defense activities are very significant, the researchers hypothesized that sizable future cost reductions can be realized by more effective maintenance resource management. Expressing maintenance resources in cost terms is just a practical way of bringing together many different things—for example, different manpower skills, types of equipments and materials, etc.—for purposes of estimating and measuring the maintenance resource impact of changes in forces, weaponry, operational activity, and logistics support concepts.

By having maintenance resources costed and stated in terms of outputs of the maintenance function, i.e., maintenance expended on weapon/support systems, and further, by relating the output maintenance costs to operating functions, military management is provided with informational tools to generate more effective resource management. Cost reduction would therefore be an outgrowth of improved maintenance resource management. The Torbet/Schu thesis is an important step forward in achieving this goal.

UNBEND AND RELAX

By eliminating multiple bends and relaxing tolerances in the AN/APQ–72 radar set handling fixture, Lt. James Cooney, formerly of the Pacific Missile Range, Point Mugu (Calif.), saved $890 per unit for a total annual savings of $89,000. New design is at left in photo.

CLASSIFICATION MANAGEMENT

By **DEAN RICHARDSON,**
Commander, U.S. Navy

Management Attention Needed

The management of classified defense information is probably one of the least understood and potentially most fruitful areas for eliminating unnecessary costs.

Effective classification management requires organization, planning, leadership, and control.

Pressure to Classify

In the day-to-day conduct of business, many a letter is classified simply because it referred to a classified document and the drafter felt that maybe something sensitive was disclosed, or perhaps just didn't know whether or not it should be classified. To be on the "safe side," he classified.

He succumbed to the easy, pat, and expensive approach: Classify everything. If this were general practice, contract costs would soar, files would overflow, additional supply storage warehouses would be needed and, in fact, the integrity of the national security system would be seriously damaged.

The Cost Penalties

Consider the costs of shipping. Classification officials must ensure that all the media available reflect the latest security classification of material. This involves dissemination to inventory control points, field and subordinate activities, prime and subcontractors, testing agencies, proving plants, research facilities, operational forces, documentation centers, training commands, international allies, etc.

How much did it cost you to mail that Christmas box? Multiply this by 12 and you'll get about the average cost of a comparable classified shipment.

Consider the cost of producing hardware. If the procurement is classified, the entire assembly line *may* require a closed area, necessitating extra guards, protective devices and the processing of security clearances for more employees.

What does it cost to protect classified documents? The results of an independent survey, conducted with 31 contractors revealed that the annual cost for handling one secret document ranged from $1.08 to $7.18; for handling a confidential document $0.49 to $3. The low figures did not include physical security costs

There are many other examples of costs directly attributable to protecting classified information. Government and industry run up a staggering overhead cost each year for security. If only a proportionate amount of that effort were devoted to effective classification management overhead security costs could be reduced by at least one-third, and this is a conservative estimate.

FORMULA FOR IMPROVEMENT

How can these costs be reduced? First, classify *only* information and material that is sensitive. Second, continually review it. Third, declassify when the information is no longer sensitive.

If a general statement can be made about classification, it is: every classification determination must be made on a case-by-case basis.

It is impossible and impractical to establish a set of hard and fast rules by which each instance of classification will be governed. Every classification determination must be made in consideration of a set of circumstances peculiar to the material being considered.

Hardware

For example, when classifying hardware, one must determine what is revealed by the external view alone. What is revealed if the equipment can be handled? Does the information disclosed enable an unfriendly source to develop a countermeasure to the weapon or to defense plans? Will the information disclosed enable him to improve his existing weapons?

How can these unnecessary costs be avoided?

- Classify individual components according to the sensitive information each reveals, if any.

- Define that point in production or processing when a piece of hardware becomes classified; then protect this segment of your production line only.
- Subcontract unclassified parts to commercial sources that operate on a lower overhead and consequently can produce at lower cost to you.

Printed Material

A problem arises concerning the printed material related to hardware. This material may be either classified or unclassified. The classification of supporting documents does not necessarily conform to hardware classification. In most cases, descriptive material, results of tests, design details, countermeasure capability as well as counter-countermeasures will be classified.

Supporting technical documents should be classified, if at all, by page and paragraph, if practicable, according to content only if sensitive information is revealed. It costs approximately $1.35 to publish one printed classified page; the same page printed as unclassified may cost a maximum of $0.30.

Observer Considered

Both the inexperienced and the expert observer may obtain about the same level of information from an unclassified external view. (External views are classified in consideration of what information is revealed to the experienced technical observer.) The educated or experienced observer will immediately recognize the intelligence value of printed material revealing test results, operating parameters, frequency coding, propellant formulation, etc., written in technical language but generally unrecognizable to the inexperienced observer.

The Technical-Intelligence Partnership

The most efficient method of accomplishing a case-by-case review is on a bilateral basis between the technical community and the intelligence community. This involves the cognizant engineer responsible for technical engineering decisions and the classification specialist who must be familiar with intelligence appraisals and who must make sound judgments based on all the facts at hand, such as:

(*a*) To what extent will the information revealed affect other classified programs?

(*b*) Will the weapon vulnerability be revealed?

(*c*) Has such information already been revealed?

(*d*) In what way will international relations be affected?

(*e*) Can the information be determined from unclassified sources?

(*f*) Will defense effort or sensitive military plans be revealed?

This *partnership* between the technical specialist and the classification specialist is an absolute necessity in any organization procuring *or* producing defense hardware. The engineer is deeply involved in complex technical problems and cannot be expected to be aware of the intelligence and technical aspects of security. The classification specialist cannot be expected to comprehend engineering details of complex weapon systems. However, as a team, this partnership begins to pay off when the classification specialist interrogates the engineer to determine the sensitive specifics that actually require security protection. The end result is a highly sophisticated classification guide for that particular system, one that will provide protection of sensitive information only.

Review for Downgrading

Classification management does not stop with the preparation of a classification guide. During the course of development, individual components must be reviewed for declassification or downgrading. Periodically, at least once each year, classified material should be reviewed. Diligent application of realistic security classification policies, flexible enough to accommodate changing technical and international climates will gradually reduce the amount of classified material to the point that will enable the Automatic, Time-Phased Downgrading and Declassification System to function effectively and to efficiently reduce aging files and classified storage requirements.

Maj. Gen. Alonzo A. Towner, Strategic Air Command Surgeon, reports that $70,100 was saved in fiscal year 1965 by assigning newly commissioned medical officers directly to their duty base, bypassing the usual 3 weeks' orientation course at Gunter AFB, Ala. This helped alleviate the annual critical summer shortage of physicians. Arrangements were made for the local medical group to provide the required orientation.

OVERRUNS OVERCOME

Publication costs were flipped to a $68,000 fall when FLIP overruns were eliminated.

FLIP's are Flight Information Publications prepared by the Air Force Aeronautical Chart and Information Center for distribution to all USAF flight operations centers.

Some of these publications are in book form; others are folded sheets and contain the latest aeronautical information available. The revision cycle of each publication varies depending upon user requirements approved by Hq. USAF; however, most of the items are revised, printed, and distributed every 28 days. As new editions are received the previous edition is obsoleted and destroyed.

Reproduction is by lithographic (photomechanical and mechanical) processes. Much of the printing is done commercially.

Until recently, it was generally accepted that exact quantities would be very hard to get on high speed modern printing equipment. Printing contracts were prepared with the following clause: "Subject to conditions of the General Provisions, variations in quantities by product, not to exceed 5 percent, will be accepted. In no event shall the quantities supplied be less than those specified for each issue. The overrun quantities not to exceed 5 percent shall be delivered to Hq. Aeronautical Chart and Information Center." This permitted printing contractors to supply up to 5 percent greater quantities than were specified.

The volume of "shelf stock" destroyed as each new issue was published caused a study to be made to determine the actual requirement for the "quantity variance clause." The study revealed that the printing equipment could be controlled much better than was generally accepted as evidenced by the fact that quantities received averaged more than 4 percent in excess of the quantities required. Tolerances were then adjusted to zero level with payment for overruns being eliminated. The following clause was inserted in the contracts replacing the previous 5 percent variance clause. "No variation in quantity will be accepted pursuant to the General Provisions. In no event shall the quantities furnished be less than those ordered. Delivery of overruns to the Government is not desired. If overruns are delivered, they may be returned to the contractor at his expense. In no case will payment be made for quantities in excess of the quantities ordered." Result: Surplusage minimized and $68,000 saved.

MORE FLIP

The 1254th Air Transport Wing, Special Missions (MATS), Andrews Air Force Base, flies the highest dignitaries in the Nation on domestic flights. Missions frequently terminate at civilian airports of every description. Flight facility charts for navigation and terminal data to support these missions were provided by ACIC through procurement of commercial publications (Jeppesen Airway Manuals). A staff study made by the 1299th Air Transport Squadron revealed that the USAF/USN Flight Information Publication (FLIP) would satisfy the squadron's needs. Commercial publications are no longer provided. Fiscal year 1966 savings: $2,900.

PRESS RUN REDUCTION CHARTED

The Air Force Aeronautical Chart and Information Center in St. Louis, Mo., is realizing savings by the use of "process printing" in the production of aeronautical charts. By combining two or more existing colors, another color is created, thereby reducing the number of press runs to produce certain charts.

For example, combining in one press run a tone from the yellow city plate with a tone from the blue water plate creates a green for a land tint without necessity of a separate run for the green.

Using this process printing principle, a reduction of two plates, and subsequent press runs, was achieved on each job when adapted to Operational Navigation Charts (large and small), Pilotage Charts, and Air/Ground Charts.

During the third and fourth quarters of fiscal year 1965, $32,400 savings was realized. Wider application during fiscal year 1966 is expected to save approximately $200,000.

CLOSE BRUSH WITH FAILURE

Pencils figured in maintenance savings at Norfolk Naval Shipyard (Va.) when small motors for electronic equipment failed because of worn brushes. These brushes, a carbon compound material, conduct electricity between the rotating and stationary parts of a motor. Since spare brushes had not been provisioned and were not otherwise available, the motors were being replaced with new ones costing $44.50 each.

Messrs. Q. C. Parker and T. Iwaniw, electronics mechanics at the shipyard, discovered that a brush could be made from standard lead in mechanical pencils. Following a 300-hour bench test, their suggested procedure was approved for use by other Navy activities experiencing like difficulties, pending receipt of replacement brushes.

TOTAL PACKAGE CONTRACTING

The following statement on Total Package Contracting is excerpted from "Statement of Secretary of Defense Robert S. McNamara before the Subcommittee on Federal Procurement and Regulation of the Joint Economic Committee, January 24, 1966." Paragraph headings have been added.

C–5A AWARD A MAJOR BREAKTHROUGH

One of the most encouraging developments in this area (competitive contracting) last year has been the evolution of the "total package" contracting concept which we have recently applied to the C–5A transport aircraft program. In my judgment, the C–5A award represents a major breakthrough in contracting techniques. Heretofore, it has proved most difficult to avoid sole source procurement of major weapon systems such as missiles or aircraft which require extensive development effort. The development contractor, having already amortized large engineering and tooling costs, usually has such a great advantage in bidding for the production contract that meaningful competition for all practical purposes, is impossible. Furthermore, in these large technically complicated projects, contractors are often prone to propose unrealistically low prices on the development phase, with the expectation of making their profit on the production contract. Under the new "total package" concept, however, a single competitive contract is awarded covering not only the development but also production and system support for a specified time period.

INCENTIVES INCREASED

In the case of the C–5A, the airframe contract covers the development, test and production of 58 aircraft, with specifically priced options for 57 more, and a formula-priced option for another 85. The engine contract parallels the airframe contract. Both the aircraft and engine contracts employ flexible incentive features which, by holding out the possibilities of higher profits, are designed to induce the contractors to assume more responsibility for cost overruns, thereby increasing the incentive for cost reduction. The contracts, of course, are written so as to limit the Government's liability if they have to be terminated before completion.

EXTENDED TO MAJOR SUBCONTRACTORS

The main elements of the "total package" concept are also being extended to the major subcontractors. Being committed to overall target costs and performance specifications before completion of the detailed design, the major subcontractors, as well as the prime contractors, have great incentives to design for more economical production, higher reliability and greater ease of maintenance.

NAVY APPLICATION

In a significant departure from traditional shipbuilding practice, the Navy, too, is now applying the "total package" concept to the construction of Fast Deployment Logistic Ships. Interested bidders were requested last December to submit their qualifications and a formal request for proposals is scheduled to be issued late this spring. Later, in the summer, two or three successful bidders will be selected to conduct a 6-month study of the program. Contract definition should be completed by the spring of 1967 and negotiation on the total procurement package should begin in the summer.

Bidders will be asked to submit cost proposals to meet performance and reliability standards, rather than detailed ship characteristics or material specifications. By avoiding rigid specifications and requiring the bidders to guarantee their cost estimates and ship performance proposals, we hope to provide them with a strong incentive to engineer and design for maximum efficiency. The final contract award will cover the design, construction and selected support aspects of a fleet of these ships. By employing a multiyear contract, and taking advantage of "learning curve" economies, we should be able to reduce construction costs considerably as well as obtain a highly desirable degree of standardization in this class of ship.

PLANNED USES

The Air Force is presently planning to develop and procure the Short Range Attack Missile (SRAM) under the "total package" concept and the Army may employ a modified version of it for the Advanced Aerial Fire Support System. As we and our contractors gain more experience with this new method of procurement, we may be able to widen its use considerably.

REPEATING

ASSISTING DISLOCATED EMPLOYEES

The following summary of Defense efforts to assist employees dislocated by base closures and reductions is excerpted from "Statement of Paul R. Ignatius, Assistant Secretary of Defense (Installations and Logistics), before the Special Subcommittee of the House Armed Services Committee on Military Base Closures and Reductions, Tuesday, January 25, 1966." Paragraph headings have been added.

SEVEN POINT PROGRAM

With respect to its own career employees who are dislocated by the closing of military installations, the Defense Department bears a special responsibility both as an employer and as an agency of the Government. To assist in carrying out this responsibility, the Department has adopted a seven-point program, making full use of all existing legislative authority. Under this program we:

- Guarantee a new job opportunity to each displaced employee;
- Operate a nationwide system for matching displaced employees with job vacancies;
- Restrict hiring of new workers, giving preference to displaced employees;
- Facilitate the placement of dislocated employees by the temporary waiver of job qualifications and by retraining programs;
- Protect the income of displaced employees during the period of transition;
- Reimburse a displaced employee for the costs of moving to a new job in the Defense establishment;
- Make full use of the "job finding" resources of the U.S. Civil Service Commission and the State employment offices.

This continuing employment opportunity program is designed to protect the job security of the Department's career employees, to minimize personal hardships resulting from Defense program shifts, to preserve the talents and experience of its work force, and, over the long run, to improve the climate for change itself.

OFFER OF JOB OPPORTUNITY

Every Defense Department career civilian employee dislocated by a base closure is offered another job opportunity, and wherever possible he is given a choice of location. For example, between January 1, 1964 and December 1, 1965, over 59,000 of the 74,600 civilian employees affected by base closures, reductions, etc., were placed in other positions. (Military personnel affected by such actions are simply reassigned to other duties, a completely normal feature of service life.)

CENTRALIZED REFERRAL ACTIVITY

A Centralized Referral Activity has been established in Dayton, Ohio. Here, with the help of a computer, displaced employees reported to the center are matched against job vacancies elsewhere in the Defense establishment. The releasing activities provide the center with information on the skills of the employee and the grades and locations he is willing to accept. Every 2 weeks the center sends to each Defense installation at locations for which displaced employees have indicated a preference, a "stopper list" of the job categories for which these employees qualify. The installations receiving these lists must stop hiring new employees to fill vacancies in those job categories, and report their requirements to the Centralized Referral Activity. An exception is allowed where the vacancy is filled by a transfer of a displaced employee within the same military department or Defense agency.

In the first 10 months of the referral operation, about 9,000 registrants were placed in new jobs. Since excess military installations are phased out over extended periods, in some cases as long as 3 to 4 years, there should be sufficient time for normal personnel turnover to provide new job opportunities for displaced employees.

WAIVER OF QUALIFICATION REQUIREMENTS

To facilitate further the placement of employees affected by base closings, the Defense Department has secured the agreement of the Civil Service Commission to waive, temporarily, qualification requirements for certain positions and to permit on-the-job and off-the-job training of such employees to help them qualify for those positions. Agreement has also been reached with the Department of Labor for the training of displaced Defense Department employees for non-Federal jobs under the Manpower Development and Training Act of 1963 as amended. Over 500 applications for such training have been submitted by employees of the New York Shipyard, and we hope many more of our displaced employees will take advantage of this opportunity to gain new skills.

(EMPLOYEES, *continued on next page*)

(EMPLOYEES, *continued from page 31*)

MOVING EXPENSES

To minimize the financial impact on displaced employees who have to move to new Defense jobs at other locations, the Department now pays the moving expenses. Moreover, career employees may now continue to receive their present pay for a period of 2 years when they accept a lower paying job or move to a lower pay rate area.

OTHER EMPLOYMENT SERVICES

Finally, the Defense Department is utilizing fully the resources of the Civil Service Commission in locating job opportunities in other Government agencies and those of the State employment services in finding jobs in industry for displaced Defense Department employees.

SEVERANCE PAY

To ease further the financial burden on displaced employees, the President last year requested new legislation, applicable Government-wide, which would provide for severance pay and more liberal payments of moving costs. The severance pay provision has already been enacted. An eligible employee can now receive 1 week's pay for each year of service up to 10 years and 2 weeks pay for each year of service beyond 10 years, plus an additional 10 percent of severance pay for each year he is over 40 years of age, providing the total does not exceed 1 year's pay.

HOUSING

We are also developing a plan for the implementation of section 108 of the National Housing Act of 1965, which authorizes the Secretary of Defense to acquire private dwellings owned by Defense Department personnel affected by base closures.

RESULTS

Experience to date with the new Employment Opportunity program has been very encouraging. Action has now been completed on 42 base closures which displaced 6,600 Defense Department career civilian employees. As shown in the table below, all of these employees were offered other job opportunities and 73 percent accepted a new position or a transfer to a new location in the same position.

Of the 4,844 employees who accepted a new position (or transfer), about 72 percent made the change at the same or higher grade (or job level); a substantial proportion of those who accepted lower grades did so without loss of pay due to the "pay-saving" policy mentioned earlier.

EXPERIENCE WITH THE EMPLOYMENT OPPORTUNITY PROGRAM AT 42 BASES WHERE CLOSING ACTION HAS BEEN COMPLETED

Employees	*Number*	*Percent*
Moved to another Department of Defense job	4,096	62.1
Placed in another Federal job	595	9.0
Placed in a non-Federal job	153	2.3
Declined job offer, transfer or placement assistance	906	13.7
Retired or resigned	748	11.3
Other (death, military service, etc.)	102	1.5
Total employees affected	6,600	100.0
Separated without job opportunity	None	None

Adm. David L. McDonald, USN, Chief of Naval Operations.

CNO ON "PROJECT THRIFT"

"Naturally, the most fertile areas for cost reduction are in procurement actions and in operations and maintenance functions ashore. However, I feel that the fleets, too, can do their part and I invite your attention to OPNAV INSTR 7720.1 series, which promulgates Project THRIFT and governs the operating forces' participation in cost reduction. * * *

"Project THRIFT should be emphasized to all operating commands so that we may further enhance the Navy's already enviable record of cost reduction at the same or improved effectiveness."

TAXIWAY LAMP BURNOUTS MINIMIZED

A craftsman in the Civil Engineering Division at Wright Patterson AFB, Ohio, concerned himself with the excessive number of sealed beam lamps being used on Tinker Air Force Base's taxiway lighting system and reaped double benefits for Air Force Logistics Command's Oklahoma City Air Materiel Area by solving the problem.

His suggestion netted the base $40,928 in a single year and, at the same time, increased the reliability of the lighting system.

Robert L. Day, electrical lineman leader, who is responsible for the upkeep of the landing and taxiway lights, said: "Before the fix, we had to replace from 15 to 20 lamps every morning. Four brass nuts must be removed from the housing before the lamp is installed, after which the housing is replaced. The average time consumed in this procedure is approximately 30 minutes per lamp."

The taxiway lights are installed in a series circuit with 317 lamps of 320 lumen on the system. The lamps are designed to burn at 6.6 amperes with varying voltage to accommodate the load.

Day found that the primary transformer was producing 6.8 amperes instead of the desired 6.6. This was causing the lamps to burn with a greater intensity than they were designed for.

He reasoned that three smaller transformers producing less amperage could be installed and still produce the necessary voltage to carry the load. He submitted a suggestion which was approved and the recommended transformers were installed.

The lamp replacement rate dropped immediately to two or three per night with a resulting fall-off in lamps amounting to about 10,000 lamps per year. The lamps cost approximately $5 each. Man-hours saved were valued at $1,500 per year.

(MAINTENANCE, *continued from page 14.*)

able limit to what can or should be done in all of our actions. We must expect line management to audit their performance on the horizontal levels as well as within the vertical channels of the management communication systems.

Cost Reduction

During fiscal year 1965 the Secretary of Defense's cost reduction program in the maintenance area realized hard savings totaling $167 million against a goal of $130 million. This certainly does not constitute the only savings provided by our maintenance managers. New, improved or intensified management contributions may result in savings in various subgroups of the cost reduction program or may not be identifiable until future program years.

As we move ahead with the cost reduction program, the managers must continue to look for opportunities to recognize individual accomplishments and also consider opportunities involving more than one manager. The broader organizational area involved may be more difficult to document, but it also provides a field for larger accomplishments. If we put too much emphasis on the small organization area or cost reduction subgroup, there could be a tendency to develop a narrow-minded attachment to a particular mode of thinking. We must not become so engrossed in "pet projects," "sacred cows," "cults" or immediate problems within our individual areas that we lose sight of the larger management organization that we represent.

Equipment maintenance managers must be able to respond to problems caused by any weakness in our ability to get the proper answer to questions raised during or after the development and production of an item. They must be able to respond to changes in operational missions or environments. This often places the maintenance manager in the position of a "Monday Morning Quarterback." Therefore, management must be alert to opportunities to accomplish new improved or intensified management that involve more than one Cost Reduction Subgroup. We must not become bogged down in our approach for management improvements to only those areas that can be clearly identified to a Cost Reduction Subgroup. Let's be sure that as managers we concentrate on a balanced approach to the various management techniques and not become members of "cults."

There are many programs and projects identified with Equipment Maintenance. These programs and projects are the result of management effort to either work within areas of authority and control or joint areas of influence wherein there exist common or related objectives. The effective maintenance manager must consider cost reduction as a part of equipment maintenance and not equipment maintenance as a part of cost reduction.

The individual manager approach has been successful and stimulating to the organization as a whole. Let's now look for additional opportunities that are more challenging by bringing managers together at a higher level of the management organization. The real objective is effective maintenance support. Added cost reductions that may or may not be identifiable with equipment maintenance management or any other cost reduction subgroup are a possible byproduct.

Technical Review in Defense Item Entry Control

Supply System Entries Screened

A new program promises additional millions in savings for Defense cost reduction. The newcomer is the item entry control program. Its objective is to prevent the addition of unnecessary new items to the DoD inventory. When an unnecessary item enters the supply system, it has to be transported, stored, maintained, inventoried, etc. These logistics are costly. The solution is to prevent unneeded entries.

The introduction of parts into new equipment will be closely monitored, beginning with design and continuing through production, provisioning, cataloging, and supply. For the first time DoD has a definitive management technique, well organized and centrally controlled, to assure that no new items in high growth classes will enter the supply system unnecessarily.

Creation of DIECO

The Assistant Secretary of Defense (Installations & Logistics) established the DoD Item Entry Control Office (DIECO) in the Defense Supply Agency in November 1963. DIECO was charged with providing leadership for the Department of Defense in developing a practical and effective means to prevent the entry of unnecessary new items into the military supply system.

No preconceived dogmas were imposed upon the new office. Instead, an atmosphere was created in which a small group of professionals experienced in engineering, supply, cataloging, standardization, and procurement could devote full time to their assignment, and also make the most effective use of their experience.

DIECO became operational in February 1964, and immediately began the exploration of its problem areas. Using a cooperative approach in gathering data and resolving problems by means of service coordination and industry advice, DIECO was able to submit preliminary findings and a plan of action by the end of March 1964.

System Prerequisites

These findings showed that an item entry control system was feasible and economically sound. Six essential elements of the system were established:

1. Controls and disciplines;
2. Item intelligence;
3. Modern catalog;
4. Standardization upgrading;
5. Defensewide technical review;
6. Communication.

The conclusion was that: (1) The required use of a broad technical base should be so organized and tested as to provide central control using a Federal Supply Class (FSC) basis, and (2) the system should be established by increments, with fast growing classes controlled first. Overall DoD coordination was determined to be essential for system programming and monitoring.

Pilot Test

A 9-month pilot test was conducted, July 1964 through March 1965. The Air Force San Bernardino Air Materiel Area, Army Electronics Command, Naval Aviation Supply Office, Defense Electronics Supply Center, and Defense Industrial Supply Center participated. All new item candidates in seven FSC's were processed by manual technical review. This took place after the provisioning screen by the Defense Logistics Services Center (DLSC). [In the DLSC ADP operation, manufacturers' part numbers are compared with Federal stock numbers (FSN) for exact matches and possible duplicates.]

Steep Rejection Rate

During the test of a technical review, some 33,000 requests for new FSN's were processed, of which about 43 percent were rejected. Most rejections occurred because the technical review disclosed duplicates or replacement items already in the DoD system. The net result was that only about 57 percent of the requests were submitted to DLSC for assignment of new FSN's and entry into the supply system. In the evaluation period following the test, the technical review was continued on antifriction bearings and screws at the Defense Industrial Supply Center, and on resistors at the Defense Electronics Supply Center.

Review Picks Up High-Growth Classes

Since an analysis of item growth in the DoD supply system over a 6-month period showed that 75 to 80 percent of all new items were in 66 of the 572 FSC's, and that 75 to 80 percent of all cataloged items were in the same 66 classes, an expansion of the technical review to include all of these high-growth classes was

This article was prepared for the Journal by the Staff of DSA's Defense Item Entry Control Office.

recommended to the Office of the Secretary of Defense.

Most (63) of the classes are scheduled to come under the technical review during calendar year 1966. They include all project SHAKEDOWN classes. The expanded review will be performed by designated departmental and DSA "Defense Technical Review Activities."

The most frequent reason for not accepting a satisfactory substitute item was that the new item was already being procured. A separate DIECO study provided that technical review is feasible after item selection but prior to procurement commitment. OSD approved this conclusion, and procedural changes to implement it are being developed.

Constant Alertness Needed

DIECO studies also indicate that item entry control in its broadest sense requires management followup during the complete life cycle of an equipment or weapons system. DIECO's initial efforts were necessarily concentrated in the provisioning and cataloging period, because that period offered the best opportunity to establish timely controls with present resources. But it is important to the item entry control system that both industry and Government design engineers be made aware of any standard or preferred parts that are already stocked or which will be stocked, and which will perform the required functions. In fact, when the design engineer recognizes a functional requirement and selects or designs an item to fill the requirement, it is, for item entry control purposes, the "point of decision." Technical review should take place at this time. Commercial equipments bought by the military are beyond item entry control surveillance during the design stage; however, new provisioned parts required for maintenance will be subjected to the technical review.

Three Design-Area Objectives

DIECO has identified three major objectives in the design area for active study and development:

1. The first is development of adequate military standards for selected high growth areas, including an improved means for identifying stock numbers of standard parts in the DoD inventory. The high growth Federal Supply Groups on hardware and electronics have been selected for initial programing, to be followed by others of the 66 classes now scheduled for technical review.

2. The second is development of new DoD policies and procedures for the technical review of new items during design. For example, once contractors are uniformly provided with full coverage of military standards in high growth classes, and are using these standards or "preferred parts lists" to the greatest extent possible, the only items requiring technical review will be those not covered by such standards.

3. The third is optimum use of ADPE in item entry control decisions in design. Such a procedure will require progressive development of item data in a central data bank and extensive automation at both the data bank and the Defense technical review activities. This objective will require time, study, and testing on selected development contracts to assure that all appropriate elements of Government and industry receive maximum benefits.

Item Identification Guides

Two essential elements to provide item identification data for the central data bank are the Federal Item Identification Guide program (FIIG) and the closely related Military Standard Item Characteristic Coding System (MILSTICCS). FIIG provides guides for the orderly determination, collection and array of item data (supply and technical) suitable for such logistics functions as procurement, cataloging and item entry control. MILSTICCS provides the uniform method by which item data in FIIG format can be developed in a machine-sensitive coded form susceptible to mass digital storage techniques, and capable of rapid transmission.

No actions are contemplated that would inhibit design, compromise performance or reliability, or deter normal state-of-the-art development.

Some problems are foreseeable in the design stage, such as the reprograming of standardization actions, maintaining responsiveness to design agencies, the timely availability of the product of the FIIG program in a MILSTICCS configuration, and resources.

Significant Savings Forecast

In summary, the objective of the DoD item entry control system is to provide controlled surveillance of new items through their life cycle from design to disposal and to hold the number to the minimum needed. The exclusion of unnecessary new items from the supply system will result in demonstrable dollar savings.

SOLVES SOLVENT PROBLEM

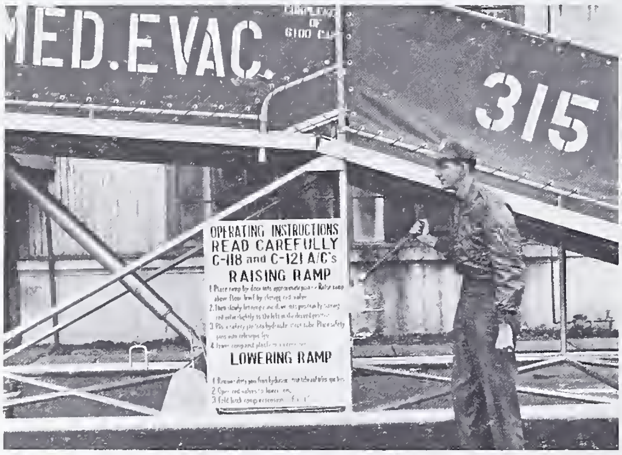
The cost of toluene, a solvent to thin or remove paint, slipped from 70 cents to 20 cents per gallon when purchases were switched from 5-gallon cans to 6,000-gallon tank-truck lots at the San Antonio Air Materiel Area. The bulk lots are stored in an unused underground tank formerly used for aviation fuel.

The toluene is withdrawn from storage and loaded into six 55-gallon drums. The drums are then hauled to dispensing racks at various points of use. Safety spigots on the drums enable workers to withdraw quantities as needed without spillage or danger of overflow.

The drums are painted distinctively and lettered "Toluene" to prevent inadvertent use in the place of other liquids. Cleaning the drums is not needed before refilling.

Elmer Cunningham, supply specialist, and Henry J. Weiss, inventory management specialist, are primarily responsible for the $22,320 annual saving.

RAMPS REPLACE FORKLIFTS



S. Sgt. Charles W. Hamilton, of the 315th Air Division's Deputy Chief of Staff for Materiel office, makes a final check of a loading ramp for the 9th Aeromedical Evacuation Squadron prior to its shipment to Tan Son Nhut AB, Republic of Vietnam. The ramp was built by the 6100th Consolidated Aircraft Maintenance Squadron to specifications furnished by the 315th Air Division and was constructed from salvage material and other stock on hand. Three such ramps are being constructed at Tachikawa Air Base for shipment to "aeromed" evacuation sites in the western Pacific.

Prior to the construction of the ramps, forklifts were used to load and off-load patients from the "high door" C–118's and C–121's. Use of the new ramps will not only increase the patients' comfort but will also enhance the safety of the loading procedure and reduce the amount of time involved.

The local construction of the ramps was done in much less time than it would have taken to order, build, and ship them from the United States. In addition, the ground handling equipment previously used will be freed much earlier for normal use.

DRIVE-ON DECK EASES LOADING

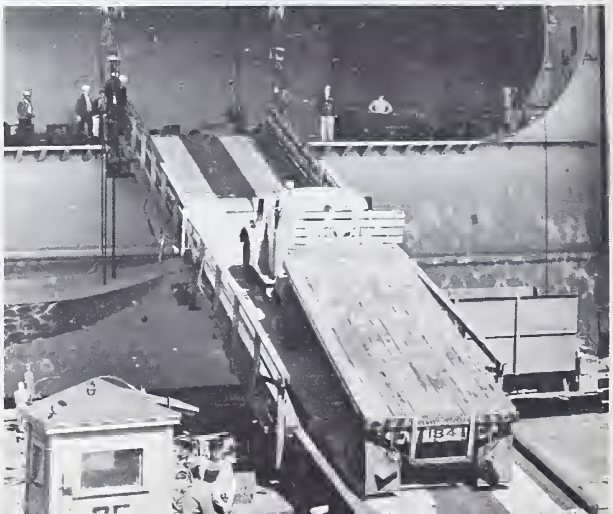
Multiple handling of materials has been reduced at San Francisco Naval Shipyard by trucking directly from deck to pier via ramps.

Aircraft carriers undergoing overhaul require constant loading and off-loading of equipment and supplies. When such carriers are pier-berthed, the loading and off-loading is limited to the use of cranes on the pier side only.

A heavy-duty truck ramp was designed to permit continuous access to the carrier hangar decks from the pier side. Use of this ramp permits truck and trailer rigs, forklifts, mule tractors, and other vehicles to be driven directly aboard the carrier for servicing and supplying the production shops and ship's force.

The design of the ramp incorporates features which compensate for the rise and fall of the tide up to 6 feet, and the lateral movement caused by winds up to 20 to 30 knots. The ramp is floated by chain falls with safety shackles on the shipboard end and 360° ball rollers on a steel plate on the pier end.

The ramp-method saved Navy $58,280 on four carrier overhauls. In addition, the shipyard was able to reassign four riggers and two crane operators, make better utilization of two cranes, and reduce safety and fire protection requirements.



HAVE YOU TRIED DIMES?

By **NORMAN S. PETERSON,** ***Management Analyst, Bureau of Supplies and Accounts, Department of the Navy***

Applies to Industrial-Type Activities

DIMES is an acronym which stands for Defense Integrated Management Engineering Systems.

The DIMES program was officially promulgated by Department of Defense directive number 5010.15 of December 22, 1965. This directive formalized efforts which began in April 1963 when the Assistant Secretary of Defense (Installations & Logistics) directed that actions be taken to assure that industrial-type activities of the Department of Defense have available the commonly accepted and proven management system and procedures generally found in the best managed industrial counterparts.

There are over 200 industrial-type activities within the Department of Defense with many hundreds of thousands of civilian personnel performing work suited for DIMES application.

Prior to formalization of the DIMES program by the December 1965 DoD directive, existing programs were evaluated, pilot activities were established, and progress was monitored by DoD components and ASD (I. & L.). As a result of these actions, DIMES is rapidly maturing into one of the most comprehensive and sophisticated management/man power control systems in the Federal Government.

Higher Productivity Is Objective

DIMES seeks to validate and encourage efforts already being made by earlier DoD component programs and to institute such efforts where programs are not yet established. The program goal is an integrated management system within the Department of Defense encompassing the following elements:

1. Methods and procedures improvement;
2. Performance measurement (engineered performance standards);
3. Production, manpower and material controls;
4. Cost accounting (highlight variance from standard).

In his budget message to the Congress on January 24, 1966, President Johnson pinpointed the task now before Government managers and employees:

> With workloads increasing in nearly every category of Government activity, the only way to restrain mounting Federal employment is by persistent management improvement and higher productivity.

Under this persistent management pressure, have you considered DIMES for your organization?

BUSANDA Concept

Let us take you on a brief tour of one DIMES application to illustrate the concepts and procedures involved in this program and indicate some of the benefits. Through this medium, it is hoped that others may find material applicable to their operations. The DIMES application outlined here is that of the Navy's Bureau of Supplies and Accounts (BUSANDA) and the Navy Supply System.

The BUSANDA concept of DIMES is a manpower control system based on engineered standards utilized by activity commanding officers to evaluate, improve, and control their operations. This is really an extension of BUSANDA's earlier methods improvement and engineered standards efforts which pioneered the application of engineered performance standards to office functions and materials handling as early as 1952.

Methods and Measurement

DIMES is a manpower control system which combines methods study (a *better* way to do the job) with methods measurement (how long the job *should* take).

Measurement is preceded by methods study which results in methods improvement. By setting standards *after* methods study has been performed, the standards reflect the time required to perform a task using improved methods and procedures. These improvements result in productivity increases which are reflected in and sustained by the standard times. This practice also avoids the potential problem of establishing engineered standards on outmoded methods and procedures.

Methods study includes individual methods of work, not just how the work is passed around. For example, it might be better for a worker to take a group of items to the supervisor than for him to take each item as he comes to it. Methods study includes finding out what must be done so as to eliminate unnecessary work. It includes improving work space: "Why have the typewriter *here* and the paper way over *there*?" Methods improvements are aimed at improving and standardizing the work of organizations and *individuals* who are doing similar tasks.

The measurement that follows the methods study is based on the fact that all individuals take about the same length of time to do the same task, if the task done is basic enough. Everyone takes the same length of time to pick up a pencil, if everyone does it the same way. Methods measurement is the exact determination of how many units of work, including authorized time for personal convenience, can be completed in a given period of time. DIMES utilizes accepted measurement techniques to determine these standard times including time study, predetermined times, standard data and work sampling.

Analysts Well-Trained

All work methods and standards analysts receive 8 weeks of intensive classroom training under the Army Management Engineering Training Agency curriculum, followed by on-the-job guided application. Upon successful completion of classroom training, each analyst is certified as an MTM practitioner by the Methods-Time Measurement (MTM) Association for Standards and Research. MTM is a predetermined time system used to establish engineered standards. This emphasis on quality and quantity in training produces standards which are accurate, dependable, and salable.

Salability is an important item in all elements of manpower management. The advantages of selling rather than forcing acceptance have become the core of the criteria for successful implementation of a measurement system. The key is the mutual cooperation of top, middle and first line management working toward a common goal for the best and most efficient method of doing the job.

BUSANDA stresses the point that the analyst is a qualified staff person who has the full-time assignment and the training which many conscientious supervisors recognize as a welcome aid in improving their operations. Even though this approach has gained widespread acceptance, there is still a need for more effective communication on the disciplines stressed by DIMES. A continuing policy of education and communication is necessary, especially in light of the increasing emphasis on more sophisticated manpower control systems and budgetary applications.

Some Results

To date, at BUSANDA supported activities, in excess of 2,500 employees have been reassigned to more urgent tasks or their billets absorbed through attrition. Presently, over 15,000 personnel work in areas covered by work methods and standards. This will increase substantially in the near future as the Chief of Naval Material has assigned BUSANDA the task of installing DIMES in supply functions supported by the Bureau of Naval Weapons, Bureau of Ships and Bureau of Yards & Docks. This includes the supply departments of Naval Air Stations, Naval Shipyards and Construction Battalion Centers. Thus, the potential DIMES coverage has risen to about 34,000 people at over 35 installations within the Navy Supply System.

Standard time data developed under DIMES provides most of the basic time values for the DoD Warehousing Gross Performance Measurement System (WGPMS). WGPMS is a DoD technique for uniform evaluation of manpower utilization in major CONUS DoD warehousing activities. This is an example of how DIMES can be adapted to different system applications.

Another significant milestone is reflected in the DoD Standard Data Repository System (DSDRS) which is planned to collect, maintain, store and retrieve standard time data to be used by DoD components for achieving DIMES Program goals and objectives. The DSDRS will provide a centralized point where standard time data will be available to all DoD components, thus streamlining the standard-setting process.

Goal is 100 Percent Coverage

Initially, BUSANDA determined that 80 percent of the personnel in the supply functions at field activities were engaged in work suitable for examination by work methods and standards techniques. Through the experience gained in reaching this goal, the work methods and standards techniques have continued to evolve, broaden, and be refined. Now a revised goal of 100-

percent coverage has been established. Thus, all areas and all personnel of major supply activity organizations will be studied and a reporting and budgetary system based on standards will be developed.

Standards Must Be Maintained

After the engineered standards are installed, they must be maintained to promptly reflect changes in methods and workflow. This maintenance is performed on both a periodic cyclic and on an as required basis. Maintenance requirements are highlighted through direct requests from operating personnel and by monitoring reporting systems. Maintenance surveys may include a complete restudy of an entire area or small adjustments in standards or staffing. The degree of change in layout, methods, and procedures since the original survey determines the scope of the maintenance efforts. In general, where standards have attained extensive application, normal maintenance of standards will consume approximately one-third of the analyst effort. Unless adequate maintenance is performed, the standards become suspect and potentially the whole system may be invalidated.

Two Areas Stressed

Two areas that are in the early stages of evolution are manpower controls and the use of engineered standards in the preparation of budget requests. Because of the immediate benefits of personnel reassignments resulting from the initial studies, both managers and analysts tend to lose sight of the long-term benefits of a manpower control system. Such a system not only permits management to "hold the line" on savings generated by the initial surveys but provides constant control of staffing requirements.

The following elements of the BUSANDA manpower control system contribute to better management and use of manpower:

- Borrowing/lending personnel from other components to meet fluctuating workloads.
- Justifying overtime requirements upon the basis of number of standard hours required.
- Basing intracomponent personnel shifts upon application of individual productivity indexes.
- Scheduling work, using engineered standards to obtain the optimum staffing-to-workload ratio.
- Performing "housekeeping" tasks on the basis of urgency and quantity of total workload.
- Batching workload to eliminate peaks and valleys.
- Using leave and training opportunities, on the basis of workload fluctuation.
- Summarizing individual and group productive effectiveness to determine performance effectiveness as measured by engineered standards.
- Monitoring workload for indications of change in mix or level.
- Evaluating the accuracy, necessity, and validity of time charges which are not against established standards, e.g., is the job essential?
- Analyzing trends to determine future requirements for restaffing.
- Summarizing hours and cost by budget function to provide cost and feeder data for activity management information systems.
- Basing annual personnel ratings and in-grade step increase evaluations upon comparison of individuals' productive effectiveness.
- Providing supporting data for granting personnel awards.
- Providing supporting data for adverse personnel actions.
- Determining requirements for retraining.
- Projecting or forecasting special manpower requirements.
- Determining cost figures.
- Analyzing reported data—i.e., error rates—on a comparative basis to provide quality evaluation.
- Comparing costs and processing times to provide procedural evaluation.

More Knowledge Needed

Further efforts are required to fully utilize engineered standards as one of the building blocks of the budget system. Education of senior budget review officials is a continuing requirement if arbitrary across-the-board percentage cuts are to be eliminated. DIMES must be a two-way street in order that those who have actively participated in improving their efficiency are not "rewarded" by being cut below their engineered staffing level.

Unquestionably, Government is moving in this direction. The Bureau of the Budget Circular No. A–11, July 15, 1964, Preparation and Submission of Annual Budget Estimates, states:

"Properly developed work measurement should be used to produce estimates of the costs of units of workload, in manhours, such as manhours per claim adjudicated, manhours per man maintained in the field, manhours per infested acre of pest control, etc., depending on the agency. These estimates should represent an acceptable level of performance based on current realistic time standards.

"Agencies are to extend the use of work measurement and unit cost analysis to both the common service activities and program activities."

(LIFE CYCLE, *continued from page 10.*)

Our study included a logic sequence for use in procurement planning, to determine whether a purchase should be (1) sole source, (2) competitive, with the award based on price, or (3) competitive, with the award based on price *plus* estimated life cost. The practicability of this type logic sequence is presently being tested by each of the military departments and by DSA. The test program will permit evaluation of the practicability of procedures and techniques for predicting reliability, maintainability and other life cost determinants; and contracts are being let on the basis of life cost.

Reduction and Measurement

Our efforts to date indicate that techniques are available for predicting and measuring logistic support costs within reasonable tolerances. Prediction techniques already employed in other military decisions are proving to be useful for procurement decisions. Greater coordination is developing rapidly among the functional areas involved in arriving at decisions. Systems for collecting cost information are also improving, facilitating use of this decisionmaking approach. I should mention, too, that from every indication, Government and contractor personnel have recognized that they must accept some degree of uncertainty in the various techniques being applied, and that occasional mistakes will be made. My personal experience in industry has convinced me that as a defense contractor I would much prefer to lose an award based on lowest life cost than I would to lose an award based on price alone. We all, as taxpayers, will benefit when life cycle costs are the economic criteria in the procurement decisionmaking process.

Nonreparables Also Studied

While this study was primarily concerned with reparable items, attention was given to the service life of nonreparables. A fixed quantity of nonreparable items purchased from one supplier may represent a different amount of utility (i.e., a different total number of units of service life) from the same quantity purchased from another supplier. In this instance, the Government's interest is again not necessarily best served by selecting the lowest price per unit of equipment. Frequently, selecting the lowest price per unit of service life is preferable. When service life in excess of the minimum required is useful, differences in service life should be a major factor, along with purchase price, in the award of contracts for nonreparables. Recommendations were consequently made suggesting that service life consideration also be tested in actual procurements.

Long-Range Implication

The military departments, and particularly DSA, as a part of the test program mentioned above, are moving ahead with such tests. Undoubtedly, the welding together of the different functional specialists and quantifying their expertise in the interest of developing an ability to accomplish a life cycle cost analysis job will present some continuing problems. The life cycle cost concept which the military departments are testing, however, should—if it can be successfully implemented—have a significant long-range cost reduction impact. The reasonableness of this approach and recognition of the potential economic impact are, I believe, typified clearly by a statement—

"The best and lowest total cost pair of shoes I ever owned initially cost me the most money."

"The contractor cost reduction program is also a very important and successful program of the Department of Defense. A few hundred representative examples of the many thousands of efficiencies being achieved in this program are illustrated in the exhibit in this hotel. The cost reduction ideas shown in the exhibit are impressive proof of the sincerity, purpose and effectiveness of the companies participating in this program. I recommend that you take a look at the display. I learned a few things, I am sure you will too."

Statement by:

JOHN M. MALLOY,

Deputy Assistant Secretary of Defense for Procurement at Advanced Planning Briefings for Industry, Atlanta.

F–101 ENGINE ACCESS DOOR RESKINNED

The original F–101 engine access door for the F–101 lasted only half as long as the aircraft and cost $1,368 to replace, until Air Force began reskinning the doors with heavier gage metal. A total of 4,140 doors are scheduled for reskinning with 800 completed through fiscal year 1965 at a cost of $513 per door.

TAPE TIP ADDS SAVINGS

Plain, old adding machine tape costing 10 cents per 225-foot roll will record technical data for the AN/FLR–9 system just as well as the previously used fan-fold teletype tape costing 85 cents per 100 feet, according to Sanford R. Planck of the USAF's 6922 Security Wing.

DUCTS CRUSHED FOR REPLACEMENT

An ingenious method of replacing the oil cooler ducts of an SP–5B aircraft was devised at Naval Station Sangley Point, Luzon, Phillippines.

The aircraft is designed in such a manner that normally the wings must be removed in order to replace the oil cooler ducts. To remove and reinstall the wings requires a hangar with overhead crane. Since hangar and crane facilities were not available at Sangley, the repair job would have had to be shipped to the nearest O. & R. activity.

Inventive minds at Sangley decided to crush inside the wings the large ducts to be replaced. The crushed ducts could then be removed through the small access door. New ducts were cut in halves, inserted through the door, and jointed together inside the wings. The entire operation required only 16 man-hours. The prescribed maintenance procedure would have required 160 man-hours and shipping costs of $117,000.

AIR FORCE FENCES WITH JUNGLE

When is standard fencing not required for an air-to-ground gunnery range? Answer: When the range is in a remote jungle area.

The 605th Air Commando Squadron, a unit supported by the 5700 Air Base Wing, Albrook AFB, C.Z., had an urgent need for a gunnery range, air-to-ground, to qualify pilots for combat effectiveness. Using standard formulas and policies and Air Force manuals, it was evident that a major cost involved was directly attributable to clearing jungle, developing right-of-way and surveying the range perimeter for fencing. However, the gunnery range was to be located in a jungle area far from any personnel areas and covered by the usual heavy tropical growth. It seemed evident that the normal considerations given to fencing could be reduced as the jungle itself, in essence, would serve as adequate protection. A decision was made to eliminate the requirement for a perimeter fence and simply install a barbed wire fence around the actual impact area.

Additional reduction of costs was immediately realized in the installation of the wire. The abundance of large trees around the impact area made it possible to string wire on standing trees and eliminate the cost of fence posts. Even further savings are anticipated in future years from reduced maintenance costs, as there will be no requirement for repeated clearing of perimeter fence right-of-way or the replacement of deteriorating posts.

Eliminated were: 2,000 fence posts at $2 each; a requirement to clear 25 miles of perimeter at $600 per acre ($15,000); and surveying 17 miles of perimeter at $177 per mile ($3,000). Savings totaled $22,000.

WHEEL!

Turn in the month's best cost reduction suggestion and win a month's reserved parking, prominently marked with your name, right at the front door!

Aircraft Armaments, Inc., Cockeysville, Md., offers its employees this stimulant to good ideas.

The company reports that the space was not reduced for a recent winner, shown at right with his vehicle.

SUCCESS CAN BE KILLING

Pages 46, 47 and 48 of the Journal have coverage on Contractor Cost Reduction Exhibits at Boston, Atlanta, St. Louis, San Francisco, and Washington, D.C.

Initial plans for these exhibits were made in December 1965. At that time it was estimated that contractors would submit approximately 280 posters for each exhibit. The estimate was based on the previous year's experience when the average number of posters displayed at each site was 250.

Maximums and minimums were specified accordingly. Limiting factors were exhibit space, display racks, and setup time, all of which were scaled to accommodate 350 posters or 70 more than were estimated would be received.

Then came the revelation. A check in January disclosed that contractors were planning to submit over 600 posters at one exhibit site alone. New ceilings were set overnight, bringing the actual submittals to a manageable 350 at each site.

The contractors' response was overwhelming. So were the exhibits—even at the reduced 350 level.

Capt. Frederick J. Bandarrae II, of the Directorate of Maintenance-Engineering, DCS/M, Hq. Air Training Command, Randolph Air Force Base, Tex., receives a Certificate of Achievement from Brig. Gen. John A. Pechuls, Deputy Chief of Staff for Materiel, Hq. ATC. Captain Bandarrae received the award for his outstanding contribution to the ATC cost reduction program in fiscal year 1965.

DENVER MAY ADOPT USAF COST REDUCTION METHODS

A plan to study the feasibility of adapting methods and procedures used in the Air Force's cost reduction program to Denver's city government was approved recently by Denver Mayor Tom Currigan.

The plan was suggested by William R. Greenwood, Lowry AFB's budget officer and assistant cost reduction program monitor, who also serves as chairman of the Citizens' Budget Committee for the city of Denver.

Mr. Greenwood, a civilian employee at Lowry for the past 24 years, was appointed head of the 151-member budget committee last year by Mayor Currigan.

In suggesting the cost reduction program for the city, Mr. Greenwood said that his experiences with Air Force cost reduction efforts at Lowry convinced him that "what has worked for the Air Force, will work for the city of Denver."

"The basic format or outline of the cost reduction program we have in mind for the city will be generally patterned after the very successful program now in operation here at Lowry," Mr. Greenwood said.

"There will be some differences, of course. But that always happens when a program designed for one organization is adapted to another."

In presenting the cost reduction program suggestion, which was unanimously approved by the budget committee, Greenwood outlined three basic starting points for the program:

1. Begin a program designed to stimulate management improvements in the multiplicity of departments, agencies, and offices in the city government.
2. Find means of reliably measuring the dollar effect of management improvements.
3. Reflect the dollar effect of management improvements approved by the budget committee in future city budget and financial plans.

By increasing average monthly bus usage from 894 to 1,260 miles per vehicle and by assigning semitrailers to organizations on a temporary rather than daily basis, Sheppard Air Force Base (Tex.) was able to release to other bases 29 passenger buses, two 40-foot semitrailers and one 25-foot semitrailer.

The submarine tender, U.S.S. *Nereus*, saved $90,999 by decontaminating radioactive pressure and depth gages used in the submarine squadron, thus eliminating the need to purchase new ones.

CLEAN SWEEP STRIKES TENTS

Over 1,000 very dirty tents used in a major field operation were tidied in a jiffy when mechanical floor sweepers replaced manual cleaning at DSA's Ogden Defense Depot. The tents were spread on warehouse floors, outside up, and cleaned by vehicle type floor sweepers. This cleaning was so effective that small, upright-type vacuum cleaners quickly finished the work. 5,812 man-hours were saved on 1,113 tents for a cost reduction of $28,300.

Photo shows extremely dirty condition of tents received by DDOU from a major field exercise.

Tents are laid flat on the warehouse floor while a vehicle-type vacuum floor sweeper accomplishes cleaning.

Capt. A. J. Fisher, Depot Commander, and Marjean Standing, Material Segregator, Maintenance Division, examine cleaned tents.

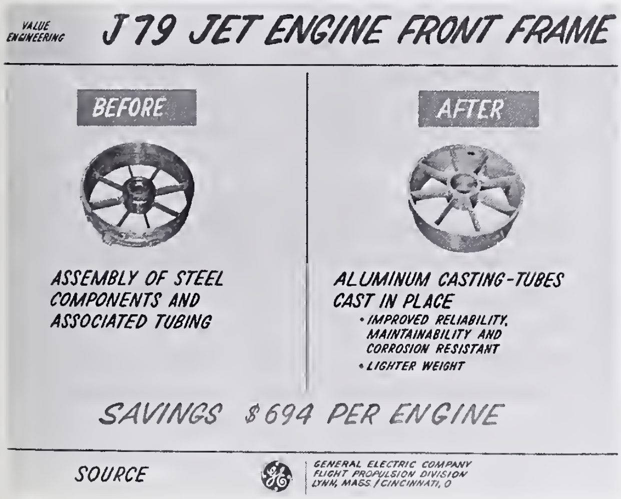
FORTHCOMING EVENTS OF INTEREST

April 27–28· DoD-National Security Industrial Assn. Advanced Planning Briefings for Industry, Washington, D.C.

May 5: American Ordnance Assn. Annual Meeting, Washington-Hilton Hotel, Washington, D.C.

May 17–19: National Security Industrial Assn.-Navy Anti-Submarine Warfare Innerspace Conference, Washington, D.C.

May 31–June 2: American Society for Quality Control Meeting, New York City.



VALUE ENGINEERING J79 JET ENGINE FRONT FRAME

BEFORE

ASSEMBLY OF STEEL COMPONENTS AND ASSOCIATED TUBING

AFTER

ALUMINUM CASTING-TUBES CAST IN PLACE
- IMPROVED RELIABILITY, MAINTAINABILITY AND CORROSION RESISTANT
- LIGHTER WEIGHT

SAVINGS $694 PER ENGINE

SOURCE GENERAL ELECTRIC COMPANY
FLIGHT PROPULSION DIVISION
LYNN, MASS./CINCINNATI, O

SPRING TENSION RELAXED

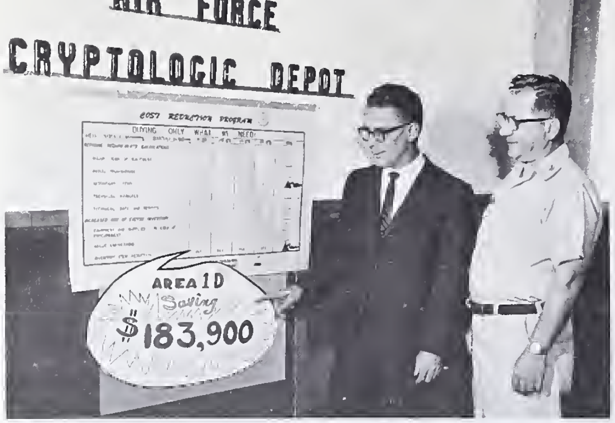
A mechanical engineer's idea for debugging the landing gear control for T–39 aircraft supplanted the manufacturer's more costly solution, saving Air Force $24,522.

Reports showed that the control for lowering the landing gear would jam if not carefully operated. The control was operated by depressing a pushbutton on the gear control handle to disengage a locking pin so that the handle could be moved to the "gear down" position. If the pushbutton was not fully depressed, the control would jam.

The manufacturer proposed a new control with locking pin and other parts strengthened. The installation would have required new kits at a cost of $26,926.

Howard A. Godwin, a mechanical engineer in the Material Management Directorate of the San Antonio Air Material Area determined that the reason the pushbutton was not being fully depressed was because the underlying spring was too strong. His solution was to replace this spring with one which was easier to operate and would permit proper mechanical sequencing of the lock release. The substitution tested out well and the technical order was amended.

One man can install the new spring in less than an hour without removing the control from the aircraft. Total cost of the substitution was $2,404, or $24,522 less than the solution proposed by the manufacturer.



Mr. Norman D. Hunt, Chief of the Materiel Services Branch in the Air Force Security Services Cryptologic Depot at San Antonio Air Materiel Area, Kelly AFB, Tex., briefs Col. Robert F. Meyers, the Depot Commander, on cost reduction savings. The depot exceeded its cost reduction goal by 143 percent.

SOLE SOURCE PRICE-LOCK BROKEN

Teamwork by a buyer, inventory manager, and technician at DSA's Defense Electronics Supply Center, broke the sole-source hold on a semiconductor diode device used by the three military services as a voltage regulator. That action and the use of an incremental bidding system halved the price of the item.

Although the semiconductor was identifiable only by the manufacturer's part number, Scott Logan, the buyer, was able to issue a Pre-Invitation Notice which brought response from eight interested firms. Mr. Logan then set about securing priced proposals. As a result of experience gained in coping with demands caused by the rapid buildup for southeast Asia operations, he used an arrangement whereby bids could be made on incremental quantities. This arrangement, permitting the Government to buy at the most desirable price for a range of quantities, was developed because experience has shown that firms bidding on an item may be competitive for small quantities but differ widely in bids for large quantities. This was found to be true in procurement of the semiconductor.

The sole-source firm submitted a proposal without regard for quantity procured. A new prospective source submitted a proposal based on quantity increments all of which were lower than the single price of the sole-source firm. The proposal of this company was carefully evaluated and approved by DESC's technician Walter Burdine.

Based on the unit price quoted by the sole-source firm, DESC saved $6,650.

NEW WEIGH FOR SHIPMENTS

By reweighing certain amounts of household goods shipments, the traffic management office at Lowry Air Force Base (Colo.) recoups $3,600 annually.

The office orders a reweigh on at least 10 percent of all inbound shipments within the continental United States, and on at least 20 percent of all inbound shipments moving between oversea areas and the continental United States.

Money is recouped from the commercial van lines when shipments weigh less than originally recorded.

Transportation costs on many shipments decrease because destination weight is less than origin weight. Government regulations require that when a shipment is reweighed, transportation charges will be paid on the lesser of the two weights, origin or destination.

NEW FUEL TEST SYSTEM TO SAVE AIR FORCE $2,700 ANNUALLY

A new system for testing aviation fuel at Amarillo AFB, Tex., will save the Air Force an estimated $2,700 a year, according to Maj. William Petram, cost reduction monitor at this Air Training Command technical training center.

Testing aviation fuel consists of using commercially manufactured solutions of potassium dichromate and sulfuric acid to determine the icing inhibitor of the fuel. The old system required the use of throw-away capsules, with one capsule per test.

Under the new system, the chemicals are purchased in bulk rates and are mixed on base to the correct percentage, then stored for future use. Since the chemical solution is highly stable it can be stored and exposed for long periods without hindering its potency.

TAGGING BAGS AWARD

A2c. Michael Frangoes, left, prepares baggage tag while A2c. Anthony Marceca, passenger service specialist for the San Antonio Air Materiel Area at Kelly AFB, Tex., ties tag to another bag belonging to Airman Frangos that will be sent to his home station, McClellan AFB, Calif. Baggage tagging is part of the service the Travel Coordinating Agency has handled in its 11-month span of error-free work. Gold Zero Defects pins and certificates were handed Airman Marceca and five other airmen of the TCA force for extraordinary achievements in handling details of air passenger travel.

Rotating assemblies needed to start RA–5C and F–4B frontline aircraft were assembled from available material at Navy's Overhaul & Repair Shops, Cherry Point, N.C. and Alameda, Calif., precluding the necessity of procuring the units commercially. Savings totaled $126,652. A $200 superior accomplishment award was given to Edward Slachta of the Navy Aviation Supply Office (Philadelphia) for his effort in this saving.

DRAWINGS MICROFILMED

A new mechanized method of reproducing drawings of engineering data for inclusion in procurement bid sets is now being used at the Air Force Logistics Command's Warner Robins Air Materiel Area at Robins AFB (Ga.). The technique is reducing costs by $175,700.

Through the efforts of Edward R. McGalliard of Warner Robins, drawings of engineering data are now microfilmed and placed on aperture cards. This eliminates collating, folding, and packaging.

Previously, WRAMA had been furnishing contract bidders multiple, bulky copies of drawings in bid sets. The old process was a very lengthy, time-consuming operation.

The drawings were reproduced by DIAZO, blueprint, Xerox, Ozalid and offset at an average cost of 16 cents a drawing. After multiple copies were run off on a press, clerks would have to collate, fold, and assemble them into bid sets.

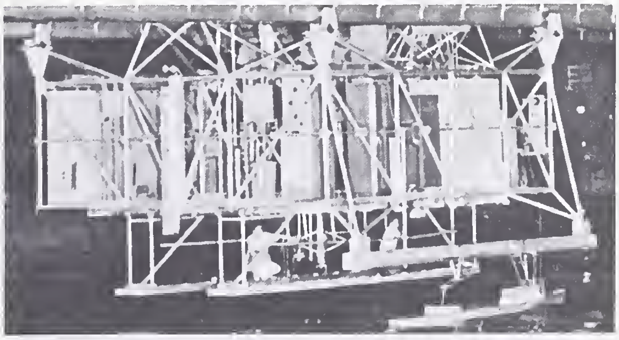
A new automatic card-to-card printer now reproduces 2,000 cards per hour. Under the new method, which went into full operation in March, the cost is reduced to 5 cents per drawing. Production time has been cut by an average of 5 days.

HULL TESTS SHORTENED

At David Taylor Model Basin, seakeeping characteristics of ships hulls can now be determined with one-fifth the effort it used to take. Formerly, hulls of models underwent several tests in regular waves, each test providing the required information at a single speed and single frequency of wave encounter. (See photo.)

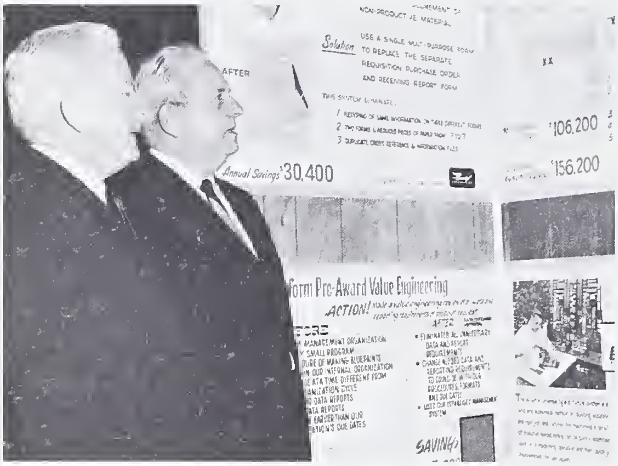
Now a wave transient is produced which contains energy distributed through the frequency bandwidth.

Under this new "wave-pulse" method a single irregular wave can provide the needed information over the entire frequency spectrum. The old testing technique required 10 labor shifts per model; the new one, 2 shifts. Savings on four hulls recently tested aggregated $19,200.

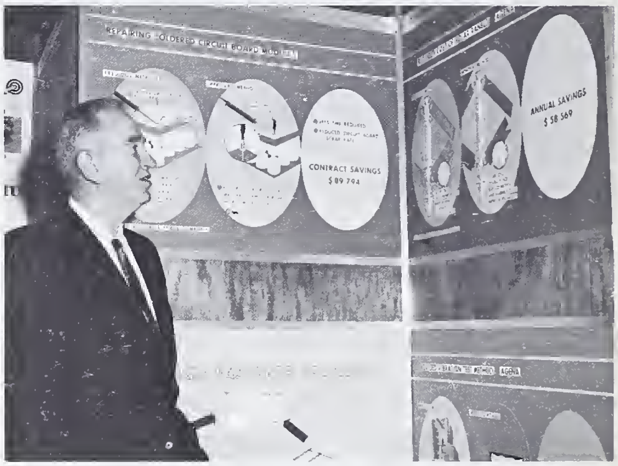


Contractor Cost Reduction Exhibits at Boston and Atlanta, March 1966

Photos show a few of the hundreds of spectators at the Atlanta Cost Reduction Exhibit.



NSIA President Gerald J. Lynch (left) and Executive Director R. N. McFarlane discuss the cost reduction exhibits.



Daniel J. Haughton, President of Lockheed Aircraft Corporation views his company's display. Twenty-eight company presidents toured the exhibits.

Paul R. Ignatius, Assistant Secretary of Defense for Installations and logistics, answers cost reduction questions at panel session of the Boston briefing.

Colonel Jack H. Alston, OSD Director for Cost Reduction Policy and John N. Swartley of Douglas Aircraft examine brochures in which company posters were reproduced.

EXHIBITS HIGHLIGHT CONTRACTORS EFFICIENCIES

March winds dusted three cities with a heavy layer of cost reduction when 68 major Defense contractors described their efficiency ideas in public exhibits co-sponsored by the Department of Defense and the National Security Industrial Association.

Sites of the exhibits were: Boston (March 3–4); Atlanta (March 9–10); St. Louis (March 16–17). Additional exhibits are scheduled for San Francisco (Fairmont Hotel, April 12–13) and Washington, D.C. (Sheraton-Park Hotel, April 27–28). The exhibits are being held in conjunction with Advanced Planning Briefings for Industry.

The exhibitors are participants in the Defense Contractor Cost Reduction program which was established by the Department of Defense and industry in response to President Johnson's December 2, 1963, request for "an affirmative program of cost reduction in the performance of Defense contracts." Guidelines for the program, issued May 15, 1964, apply to contractors having an annual volume of Defense sales in excess of $5 million exclusive of firm, fixed-price contracts. Certain other contractors specifically designated by the Department of Defense are included in the program.

Contractor performance in reducing costs under this program is evaluated by the Department of Defense and the evaluation is used in making source selections and in determining profit and fee rates in negotiating contracts.

The exhibits are intended to provide a cross-fertilization of cost reduction ideas among contractors, to promote cost consciousness and to stimulate additional contributions by personnel in Government and industry. A representative cross-section of the many hundreds of ideas displayed at the 5 exhibits will be selected by the Department of Defense for use in cost reduction training aids.

Companies participating in a similar series of cost reduction exhibits held in March and April of 1965 received commendatory letters from President Johnson.

PARTICIPANTS IN CONTRACTOR COST REDUCTION PROGRAM

Aerojet-General Corp.
Aircraft Armaments, Inc.
American Air Filter Co., Inc.
American Bosch Arma Corp.
ARO, Inc.
Avco Corp.
Beech Aircraft Corp.
Bell Aerospace Corp.
The Bendix Corp.
The Boeing Co.
Burroughs Corp.
Collins Radio Co.
Communication Systems, Inc.
Cornell Aeronautical Laboratory, Inc.
Curtiss-Wright Corp.
Day & Zimmerman, Inc.
Douglas Aircraft Co., Inc.
Dynalectron Corp.
Electronic Communications, Inc.
Fairchild Camera & Instrument Corp.
Fairchild Hiller Corp.
FMC Corp.
The Garrett Corp.
General Dynamics Corp.
General Electric Co.
General Motors Corp.
General Precision, Inc.
Goodyear Aerospace Corp.
Grumman Aircraft Engineering Corp.
Gyrodyne Company of America, Inc.
Hayes International Corp.
Hercules Powder Co.
Honeywell, Inc.
HRB-Singer, Inc.
Hughes Aircraft Co.
International Business Machines Corp.
International Harvester Co.
International Telephone & Telegraph Corp.
The Johns Hopkins University Applied Physics Laboratory
Kaiser Jeep Corp.
Kaman Aircraft Corp.
Keltec Industries, Inc.
Kollsman Industries, Inc.
Lear Siegler, Inc.
Ling-Temco-Vought, Inc.
Litton Systems, Inc.
Lockheed Aircraft Corp.
Marquardt Corp.
Martin-Marietta Corp.
Massachusetts Institute of Technology Lincoln Laboratory
Maxson Electronics Corp.
McDonnell Aircraft Corp.
Melpar, Inc.
North American Aviation, Inc.
Northrop Corp.
Olin Mathieson Chemical Corp.
Page Aircraft Maintenance, Inc.
Pan American World Airways, Inc.
The Ralph M. Parsons Co.
Philco Corp.
Radio Corporation of America
Raytheon Co.
Remington Arms Co., Inc.
Ryan Aeronautical Co.
Space-General Corp.
Sparton Corp.
Sperry-Rand Corp.
Sylvania Electric Products, Inc.
Thiokol Chemical Corp.
TRW, Inc.
United Aircraft Corp.
Vitro Corporation of America
Western Electric Co., Inc.
Westinghouse Electric Corp.
Whittaker Corp.

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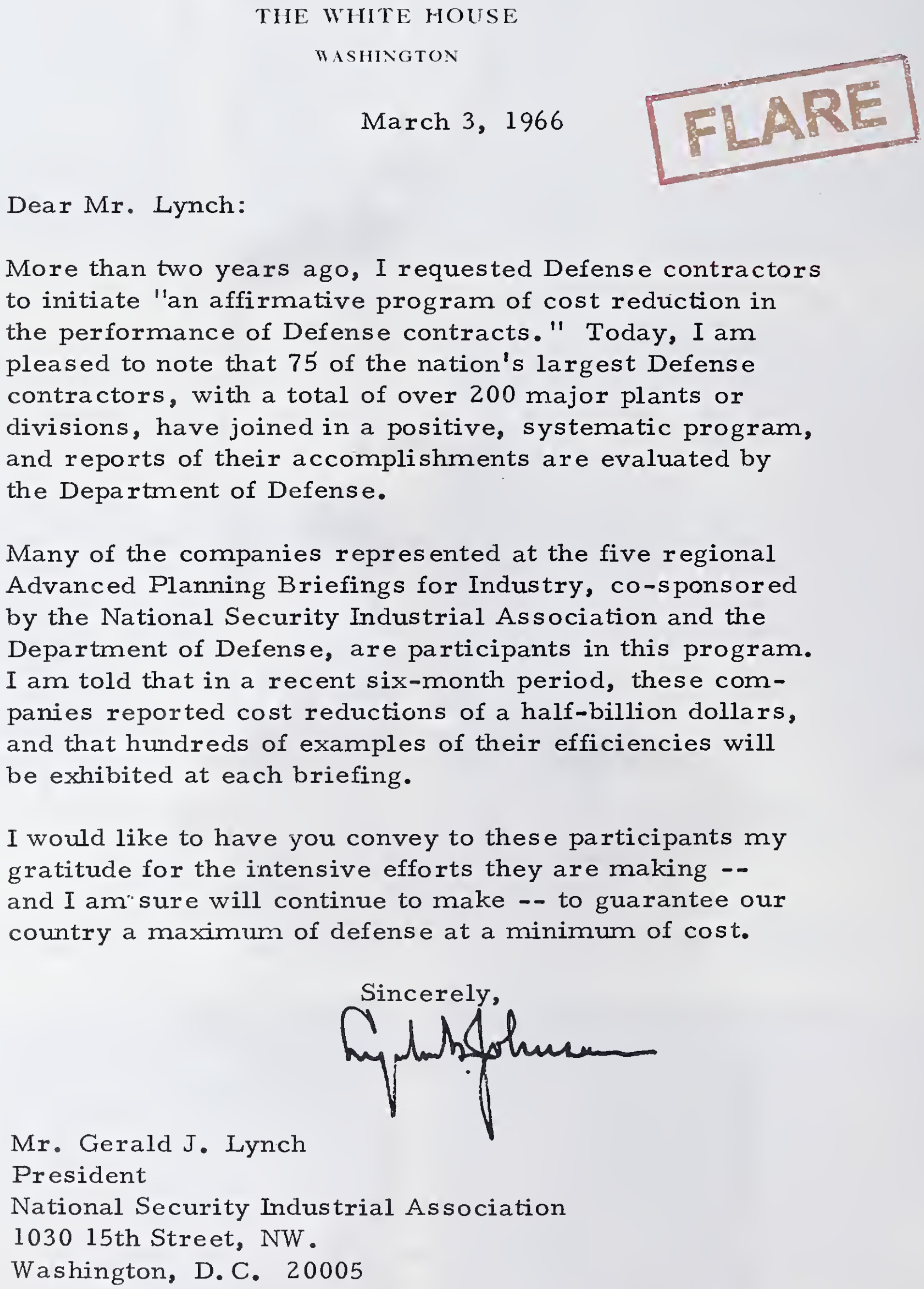
PRESIDENT COMMENDS INDUSTRY COST REDUCERS

President Johnson's letter commending participants in the Defense contractor cost reduction program is read by Mr. Gerald Lynch, NSIA President, at the Advanced Planning Briefing for Industry in Boston, March 3, 1965.



THE WHITE HOUSE
WASHINGTON

FLARE

March 3, 1966

Dear Mr. Lynch:

More than two years ago, I requested Defense contractors to initiate "an affirmative program of cost reduction in the performance of Defense contracts." Today, I am pleased to note that 75 of the nation's largest Defense contractors, with a total of over 200 major plants or divisions, have joined in a positive, systematic program, and reports of their accomplishments are evaluated by the Department of Defense.

Many of the companies represented at the five regional Advanced Planning Briefings for Industry, co-sponsored by the National Security Industrial Association and the Department of Defense, are participants in this program. I am told that in a recent six-month period, these companies reported cost reductions of a half-billion dollars, and that hundreds of examples of their efficiencies will be exhibited at each briefing.

I would like to have you convey to these participants my gratitude for the intensive efforts they are making -- and I am sure will continue to make -- to guarantee our country a maximum of defense at a minimum of cost.

Sincerely,

Lyndon B. Johnson

Mr. Gerald J. Lynch
President
National Security Industrial Association
1030 15th Street, NW.
Washington, D.C. 20005

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